ACCESS TO TOOLS AND IDEAS NO. 53 $4.50 (CANADIAN $5.50)

WHOLE EARTH Review

AmerRuss

Joining Russia and America into one country

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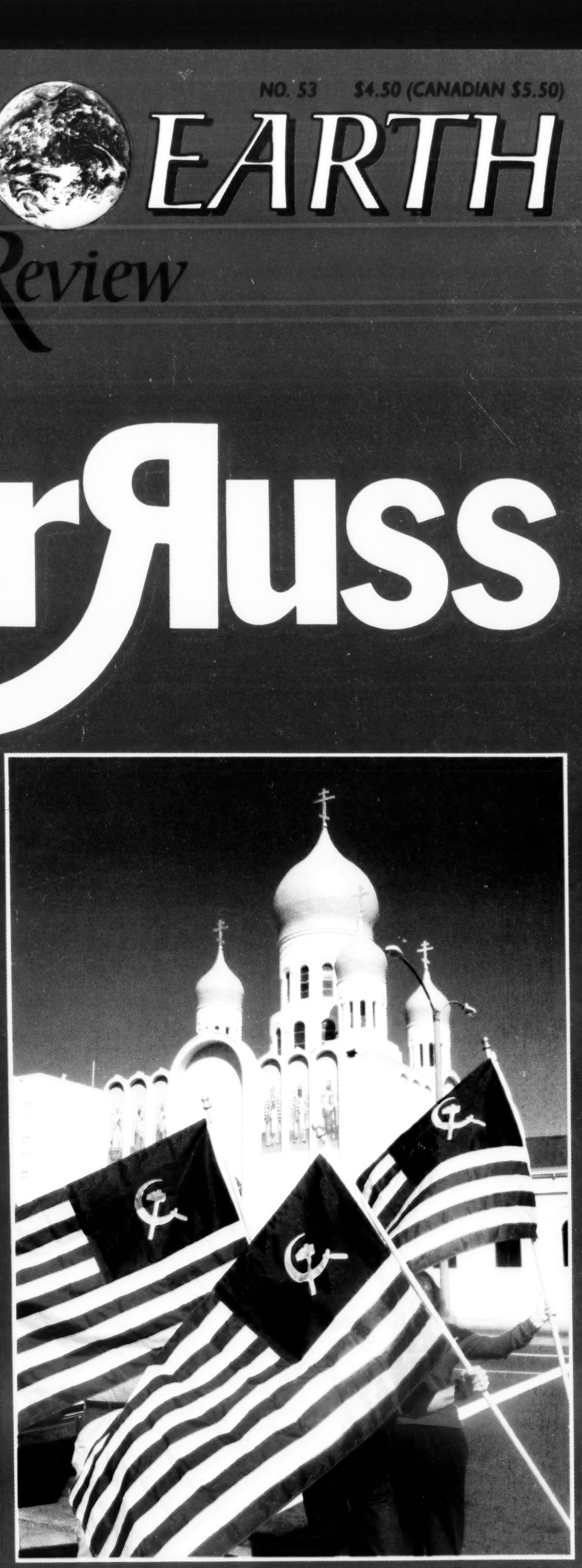


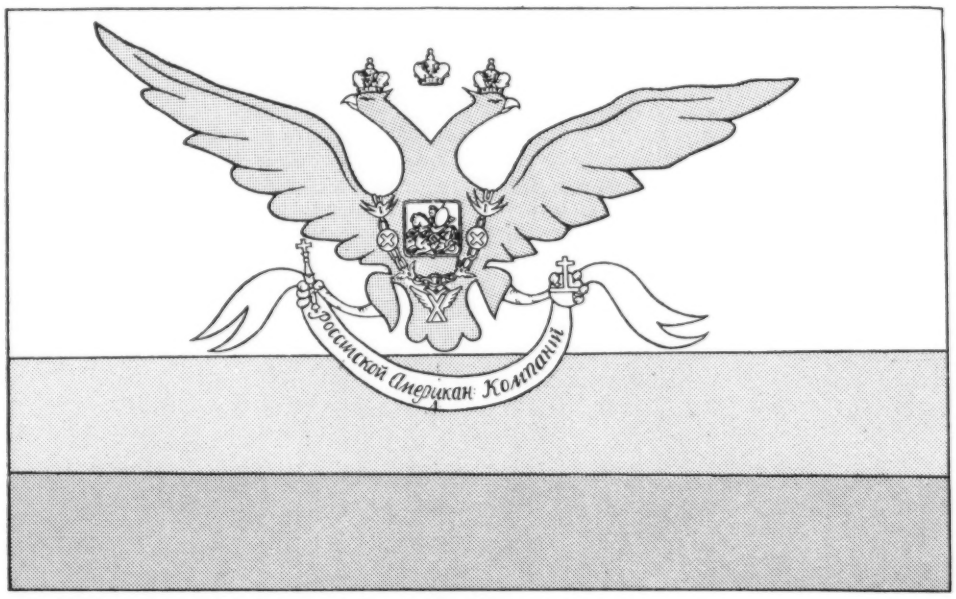
This picture of AmerRuss's flag ignited a controversy. See page 1.

ABOUT THE COVER

AMERRUSS IS THE COMBINED COUNTRY of America and Russia suggested by Robert Fuller on page 30. In order to visualize this provocative idea and the internal conflicts it evokes, a flag was in order. Photographer David Jouris and I worked out a design similar to the one displayed below left. A week after our brainstorming, I happened to walk by the Flag Store in San Francisco and was astounded to see that they sell the flags shown on the front cover as a stock off-the-shelf item. We promptly rented three of them.

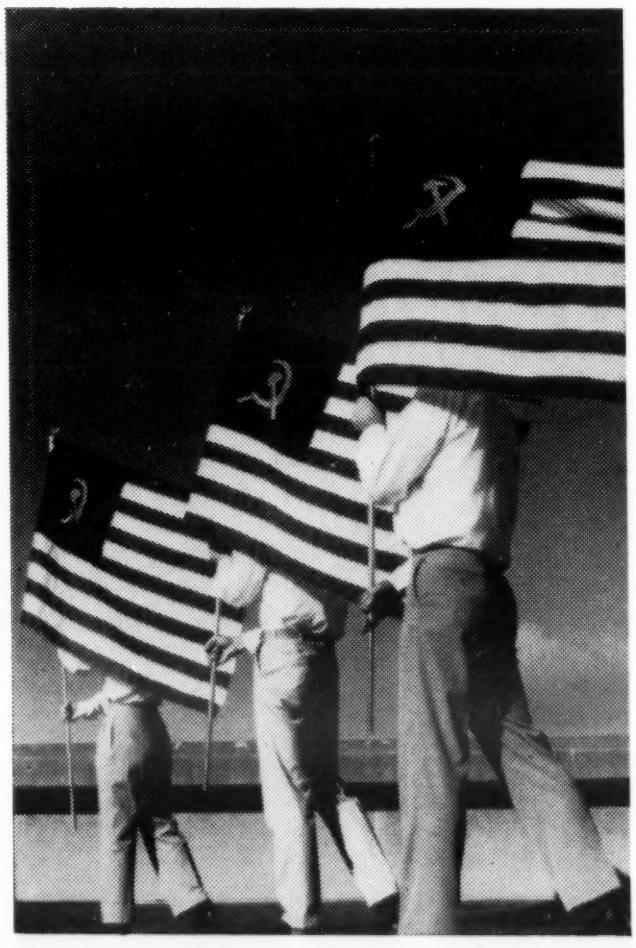
This flag is one of two variations on an American/Russian flag designed at the Paramount Flag Co. They call it "USAR." A different joint flag, called "USSA," has a solid red field like the official Soviet flag, but with 50 yellow stars arrayed in the corner as in the American flag. Both of these were designed by Jim Ferrigan, Jeffrey Sutter, and Steve Tyson at the Flag Store. In April 1980, they were chatting after work about ideas for an April Fools' window display and came up with this as an answer to the question: What if Russia and America had to share symbols? Apparently they hit on something. They sell about six joint American/Russian flags every year. A "USAR" or "USSA" flag can be ordered by mail for $45.80 postage paid from the Flag Store, 1047 Polk St., San Francisco, CA 94109.

Both of these flags were preceded by one used for over 50 years by the Russian-American Company, beginning in September 1806. The



The Russian-American Company flag (1806-1861).

David Jouris



Russian-American Company was an unusual Russian undertaking — both economic and political — chartered to commercially exploit the lands in Alaska controlled by Russia, primarily the Aleutian Islands and the Inland Waterway along the southeast coast. In recognition of their significance, the Russian-American Company had its own flag, which flew over Russian forts along the American coast. The flag features the Russian imperial double-headed eagle against three wide stripes of white, blue, and red. This flag officially flew over Fort Ross, just north of the Russian River in California, about 100 miles north of where the photo on the cover was taken. The flag flew there until 1841; a replica Russian-American flag now flies over the restored Fort.

The hammer-and-sickle emblem on our proposed AmerRuss flag is a potent symbol. It was placed on the Soviet flag to boldly depict the worker and his contribution. Originally it did not connote an economic system. The Republic of Austria, which is politically neutral and a fervently capitalistic country, added the hammer and sickle to its current flag after WWII to characterize the workers and middle class. Although the emblem is used by non-Russians, simply by its usage on the modern Russian flag it has come to represent Russia to most people. Most Americans think of Russia and then communism when they see the hammer and sickle. To some it may chiefly represent communism *in* Russia. And to a burdened few it doesn't represent Russia at all — to them it is only the dreaded badge of the communist Soviet government.

Among those burdened few are the congregations of Russian Orthodox emigres living in exile in America. They have suffered grievous personal loss through official persecution by a regime operating under the banner of the hammer and sickle. To them this symbol not only does not represent Russia, it reminds them of all that they hate, all that they have suffered and escaped from, and all that they will fight against. The domes of one of their churches appear in the background of our cover photograph.

To illustrate the abstract concept of AmerRuss we decided to give as much reality to it as we could by photographing a real flag in a real setting that would appear as AmerRussian as possible. After searching the Bay Area, the best background images we could find that would say "Russia/America" were the distinctive domes of a Russian Orthodox church snuggled in a very American neighborhood. We sent David Jouris and a crew of three to shoot the cover picture after taking some exploratory Polaroids.

As David began shooting the cover, he was interrupted by a priest who came running angrily out and prevented him from taking photographs. The priest, Rev. Stefan Pavlenko, was incensed at the juxtaposition of the hammer and sickle and his church down the street. Quite wrongfully he kept David from photographing on a public street. David persuaded Rev. Pavlenko to let him shoot several test pictures undisturbed by desperately promising him that they would not be used in the magazine. The priest ran back to his church to get a book about the martyrs in the Russian church which he read out loud to the crew as they took some test shots. We developed the pictures and they were just what we wanted, but to honor David's hasty promise, we decided not to publish these.

About a week later I went with the three flags and three of our staff to a different church in a different city that was our second-choice location, and laboriously reshot the image as it appears on cover. No one bothered us. However, the Russian community watched us and have been loudly voicing their objection to the local press. They threatened to sue on the untenable grounds of religious persecution and defamation, and have initiated a barrage of letters and phone calls.

I sympathize with the Russian Orthodox believers, and I abhor the persecution they have endured in Soviet Union. Although I don't share their strong emotions about the symbol of the hammer and sickle, I understand what it must mean to them, particularly because in the Orthodox faith icons do not merely represent things — they are real in themselves and have their own being. At the same time I jealously guard the two paramount freedoms the Russian Orthodox believers have come here for: freedom of religion and freedom of speech. We are publishing this picture as an editorial statement to provoke dialogue toward peace between Russia and America, and we have a very clear First Amendment right to do so. Just because the Orthodox church disagrees with our views does not mean that they can censor us. That's what freedom from a state religion is for — to allow room for differences of opinion on the meaning of faith and its symbols.

Our magazine has tangled before with sacred and taboo symbols. Once — with a parody of His Holiness Mickey Mouse (*CQ* #21) — we affirmed the freedom to parody a pop icon; and once — with the modern use of the swastika (cover of *CQ* #24) — we granted an artist the freedom to employ an emblem we find offensive. We'll continue to exercise our right to wrestle the essential spirit out of cultural symbols.

I believe that what the Orthodox followers have to say is important and interesting. By the immediate, explosive reaction to this flag I surmise that there's some fermenting news here that should be opened. I have offered this space to Rev. Pavlenko and to the Congress of Russian-Americans for their views. I promised to print what they wrote, and to print at least one of the letters they sent me if they submitted nothing. They sent nothing, so the letter we first received from Rev. Pavlenko is shown here.

—Kevin Kelly

Church of All Russian Saints
Russian Orthodox Church Outside Russia

Православная Церковь во имя Всѣхъ Святыхъ въ землѣ Россійской просіявшихъ.

744 El Camino Real, Burlingame, California 94010
Phones 343-7935

Mr. Kevin Kelly
Whole Earth Review
27 Gate Five Road
Sausalito, CA 94965

September 24, 1986
Sts. Sergius and Herman
of Valaam.

Dear Mr. Kelley,

On September 18, 1986, about 11:30 AM, a photographer and three assistants came to take pictures of the (Russian) ORTHODOX CHURCH OF ALL RUSSIAN SAINTS, 744 El Camino Real, Burlingame, CA. I am the parish priest and the rector of this church. I came out of the church just as the group began to unfurl four United States of America "flags", each one with the stars removed from the field of blue and replaced with the yellow Soviet HAMMER AND SICKLE.

The photographer explained to me that he was hired by the "Whole Earth Review" to take pictures of these flags with a background identifiable as "Russian". Immediately I told them that no pictures of the church would be allowed to be taken with the **mutant** flags or any other emblem representing the repressive, militantly atheistic Soviet Regime. That if such pictures should be taken and published, both those taking the pictures and anyone involved with the publishing would be sued.

In an attempt to justify their actions, the photographer relayed that it was the Editor of "Whole Earth Review" who wished to express in a cover picture the idea of the mingling of two cultures, two peoples, that of the United States and of "Russia", with a hope of peace and love in the world. The photographer went on to say that it was the Editor's perception that the **intermingled** flag was the best expression of this ideal.

All my arguments and pleading did not stop them from taking the shameful pictures, although they did assure me they took them only for technical reasons and gave me their WORD that none of the pictures would ever be published. As they went about their grisly work I read to them from a book "The Catacomb Church" an account of the brutal martyrdom of Sixty-six Russian Orthodox Priests, all shot one by one over a common pit for a grave, as each was asked, "Is there a God?" and each answered in the affirmative. SHOT!, together with millions of other victims of the very regime whose insignia is the Communist Star and the HAMMER AND SICKLE.

> LET IT BE KNOWN TO YOU, MR. KELLY, that the Russian People who attend my church and the many other Russian Orthodox Churches throughout this land of Freedoms, have all in some way suffered from Soviet Tyranny and many have family members who have died in GULag Camps or were shot or starved to death by the godless Soviet power which has its deadly grip on the once free nation of Russia. To represent the RUSSIAN PEOPLE, who are now suffering under the yoke of terror with the EMBLEMS of that very terror, namely the Communist Star and the HAMMER AND SICKLE, is an inexpressible TRAVESTY.

I implore you MR. KEVIN KELLY, as a Russian Orthodox Priest I appeal to your loftiest sense of Idealism, Justice, and true love for your fellow man; please do not allow yourself to become a part of the crimes against the long-suffering Russian Nation, and reconsider your publishing plans.

Sincerely,
Stefan Pavlenko, +Archpriest
RECTOR
Orthodox Church of All
Russian Saints

cc:
G.B. Avisov, Pesident NCC
Congress of Russian-Americans, Inc.
Burlingame, CA

Russian-American Information Center, Washington, DC

Federal Bureau of Investigation, San Francisco, CA

WHOLE EARTH Review

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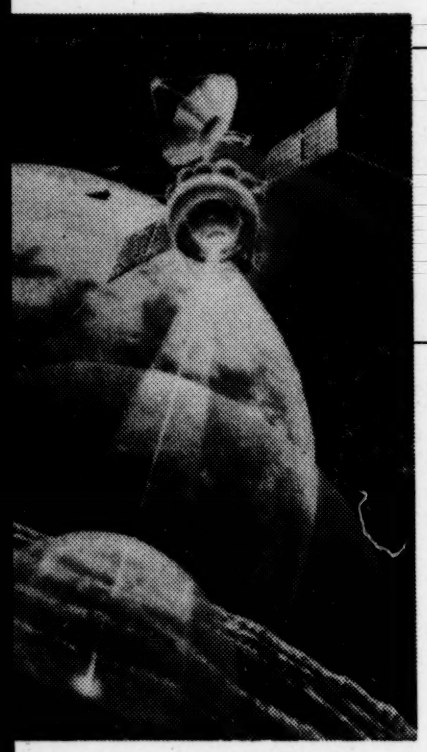

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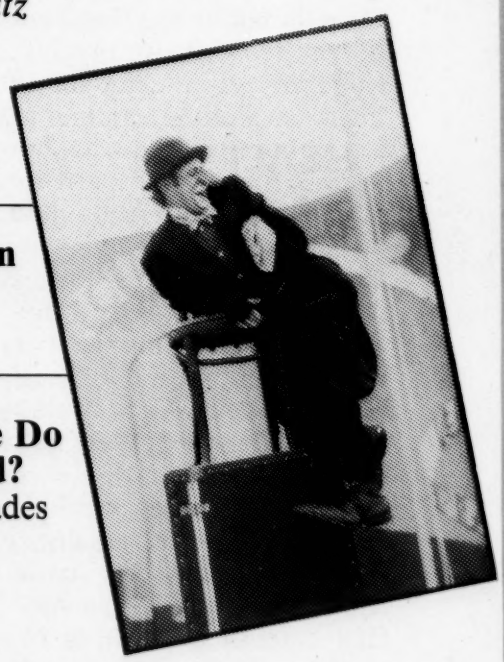

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A GAIAN POLITICS

by William Irwin Thompson
illustrations by Matt Wuerker

IN THE SIXTIES, THE YOUNG EXPECTED REVOLUTION, but the revolution did not come. So the young went back to law school and the Yippies retooled themselves to become Yuppies. In the seventies, the New Age movement expected a millenarian revelation. Looking back on the seventies, it seems as if humanity had voted overwhelmingly for a postponement of the revelation. The alternative and ecological movements were resoundingly defeated everywhere. The new age movement ended with Reagan and not Zen Governor Brown as the Californian President, and the spirit of the age made itself felt at every level of the culture by replacing "Star Trek" and "Kung Fu" with "Dynasty" and "Dallas," Joni Mitchell with Madonna, and "Close Encounters" with "Rambo."

THE FIFTIES returned. The disgusting fifties that I had hated in high school, when to be an intellectual was to be labeled a pinko-commie-queer; the fifties, when girls wore wire-reinforced brassieres — those wretched fifties returned. Never mind that things got reversed in the mirror of time, that Madonna wears her underwear on the outside and that Reagan is a fiscally responsible Eisenhower with a two-trillion-dollar deficit. That isn't the issue. It is rather that those same people had returned. The high-school mentality is back in power and the high school (as celebrated in movies like "Porky's"), and not the university, has become the central American cultural institution.

Now the easiest way to respond to such a disgusting political situation is to have a beer, slide down into sulking position, and think, "Oh, well. The good guys always lose." Intellectually, a more arousing response is to begin to wonder whether there is not something out there that one does not understand. If at the half-time of history the score is: Good Guys 3, Bad Guys 199, then perhaps something else is going on in this video game of incarnation.

Historically, evil is often the announcement of the next adaptation. If one is an anaerobic cell, oxygen is doom; if one is a hominid, human tools are murderous; if one is a hunter or a nomad, agriculture is wicked; if one is a farmer, industrial cities are evil; and now if one is a civilized human being, a planetary electronic culture is threatening, like some *Omni* magazine science-fiction illustration of flesh embedded in metal and silicon.

We have been playing a simple dualistic ping-pong game between good and evil since the emergence of writing and civilization, but now that writing is being replaced with electronics, and civilization with planetization, it also seems as if natural selection is about to be replaced with genetic engineering. Very little, then, will be left of nature, and so the nature of good and evil is also most likely to change. Indeed, all our hysterical fundamentalisms, whether Marxist, Muslim, or Moral Majority, seem *prima facie* evidence that the simple dualistic structure of consciousness is in its final, if deadly, supernova stage. If there is a chance that what we are now experiencing as terrifying and evil may be the emergence of a new adaptation, a new world, then the habitual structure of consciousness with its sim-

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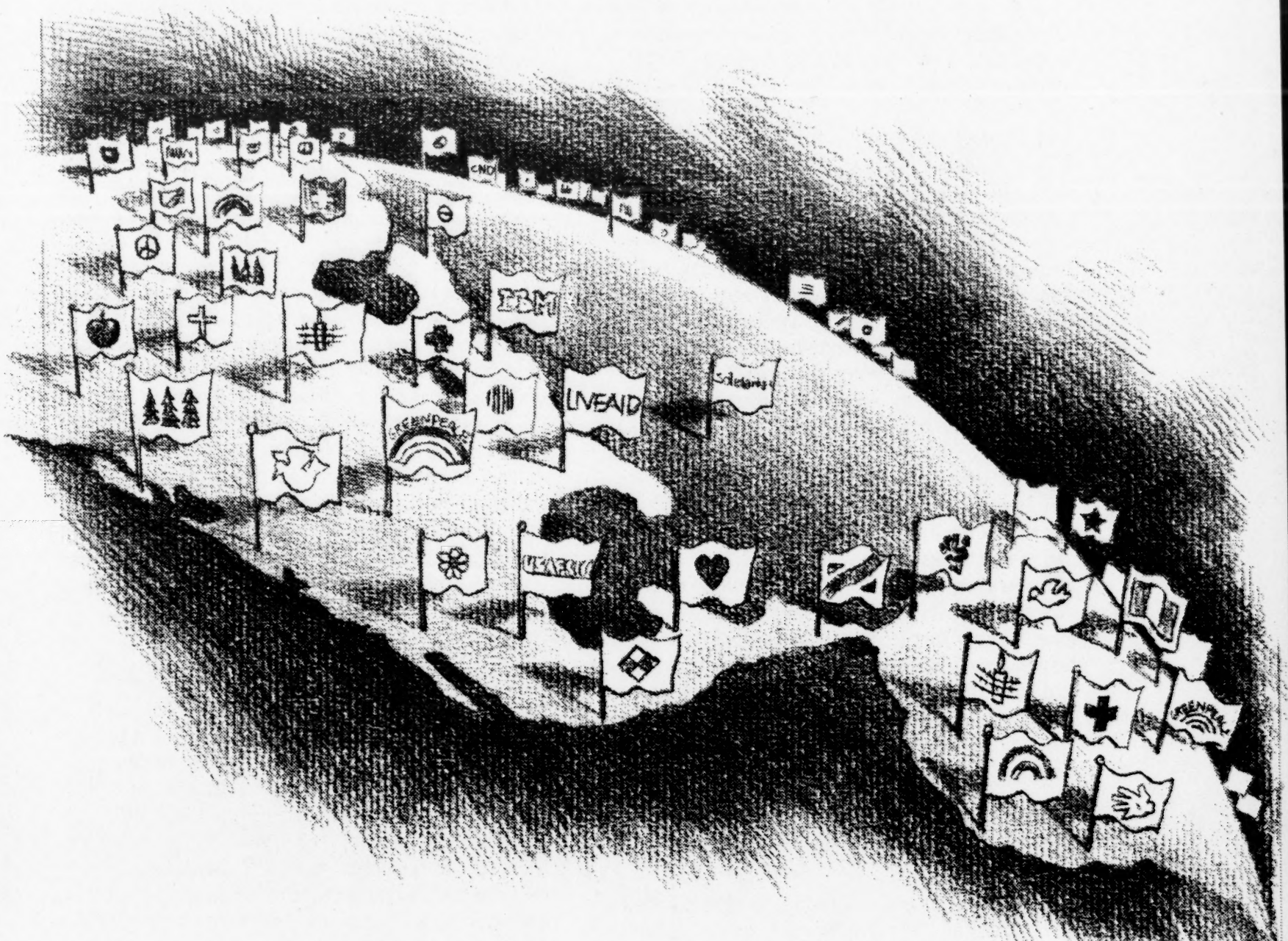
Historian William Irwin Thompson is the founder of The Lindisfarne Association, an "intellectual coffee house for the study of the humanities." His most recent book is Pacific Shift *($18.45 postpaid from Sierra Club Bookstore, 730 Polk Street, San Francisco, CA 94109). It describes the emerging global culture of the Pacific Basin — especially Japan and California — and contrasts it to the older industrial economics of Europe and the eastern U.S. He is Lindisfarne Scholar-in-Residence at the Cathedral of St. John the Divine in New York City.*

This article is excerpted from a work in progress — Gaia and the Politics of Life *— due out in 1987 from The Lindisfarne Press. The Gaia in the title is the Greek goddess of Earth. Her name today is connected with the Gaia Hypothesis advanced in 1975 by James Lovelock and Lynn Margulis, which deals with the self-regulating effects of Earth's life on Earth's atmosphere and includes the perception of our planet as a single living entity.* —Richard Nilsen



THERE IS MORE OF A FUTURE FOR POLITICAL ENTITIES LIKE GREENPEACE THAN FOR INDUSTRIAL NATION-STATES.

ple dualistic game of good and evil must be lifted up to a new level in which we begin to take responsibility for the whole range of unconscious relatedness that extends from us. In short, the unconscious polity of the world, Gaia, must begin to become a conscious polity, and this will necessitate a new Gaian form of understanding of the politics of life.

When a political policy is unsound, one discovers it through noise. Noise is an expression of the unknown and the ignored, of the irrelevant and the unvalued. As the noise builds up it reaches a point at which it overwhelms the signal, and then one gets a reversal in which the noise begins to be heard as information, and the old signals become a background hum, a Muzak of buzz-words.

Environmental pollution is a form of noise in the transmission of human purpose into the wild. At the beginnings of civilization, such noise is ignored, and only now are such disturbances as soil loss, water poisoning, and atmospheric changes truly disturbing. As this noise continues to build up it will reach the point where it will overwhelm the old signal and the industrial rhetoric will become a noise mechanically recited by people still invoking a historical envelopment that is no longer the actual historical environment.

ECONOMISTS DESCRIBE the conscious structure of a society in a language of quantitative measurement called the Gross National Product (GNP), which is an abstraction taken for reality. The unconscious process, the actual life of the culture or ecology, is ignored even

though, paradoxically, its manifestations are physically visible. The industrial nation-state is the conscious polity, but the unconscious polity is the shape of things to come.

Our unconscious polity is a biome called Mexico-U.S.A.-Canada. For the life of a biome, the boundaries of the nation-state are illusory abstractions. Our borders are melting. The land that was once taken from Mexico by the power of wealth is now being repatriated by the power of poverty. North Americans broadcast images of wealth in television commercials and programs such as "Dynasty" and "Dallas," and the Mexicans respond as multitudes attracted to the imaginary land of "El Norte." Neither the flow of electronic information nor the flow of illegal immigrants recognizes the abstract boundary of the nation-state. The border is not a wall but a very permeable membrane indeed. But simply eliminating the membrane will not work, for the structure of life in a biome is formed around the *difference* between the two regions. In Gregory Bateson's terms, it is the difference that makes the difference and constitutes information; but I would take it a step further to say that it is difference that *drives* the system, that incites to motion. Like hot and cold molecules sorting themselves out from one space to another, the ultimate thermodynamic condition could become a lukewarm one in which Los Angeles becomes a Third World city indistinguishable from Mexico City. And what illegal immigration is to the south with Mexico, acid rain is to the north with Canada.

The weakness of liberal thinking is that it focuses on *contents* and not *structures.* If one eliminates war, terrorism and violence at sports events will spring up in its place. If one eliminates the difference between the U.S. and the U.S.S.R. in the arms race, then the engine that drives the scientific systems of both nations stops, and people, no longer threatened, no longer vote for the enormous subsidies that Big Space requires. Here, perhaps, our imaginations can begin to envision what Reagan's Star Wars is really all about. The Strategic Defense Initiative (SDI) is the open consummation of a process that began in ancient Sumeria. Civilization is a misnomer for what V. Gordon Childe called "the urban revolution"; the word should be militarization. We should not be simple-minded liberals and look at the content to get caught up in silly debates about whether the anti-ballistic missile system will really work. Of course, it won't work, but the satellites and missiles are simply the *content;* the *structure* is a planetization and represents the present phase of the transition from a civilian economy, temporarily mobilized for defense, to a scientific economy permanently organized for research and development, an economy in which serendipity, of finding what you are not looking for, is often the most important spin-off. But the difficulty in getting a civilian population in a democracy to vote for a scientific economy is that the ordinary citizen is afraid of science; he is afraid of the mandarinism that makes him feel stupid. Consequently, the only way to get the citizens of a democracy to vote for the transition to a scientific economy is to frighten them and then deflect their fears of science onto the scientists of "the enemy," so that our own scientists can enter the picture as angels of deliverance. To motivate our enemy to scare our citizens, we must, of course, frighten him so that he will fall into the posture that is needed to hold up our economy.

So far, the Russians have never let us down. Considering how few Americans have ever been killed by Russians, and considering how many Americans have been killed by Americans in our decaying cities, it is clear that our sense of direction is a little off in matters of defense. Perhaps if we put the reconstruction of the New York subways on the defense budget, we would be able to find the money rather quickly. In the meantime, I think it is only fair to recognize that the Soviet Union is a close and intimate part of the United States. We could lose a few states and still survive, but if we lost the Russians as our enemy, our industrial nation-state economy would collapse.

Star Wars is not an expression of theory but a projection of fantasy, and for this role Reagan is profoundly expressive of our new electronic body-politic. Reagan is the archetypal leader of our post-industrial unconscious polity precisely because he is not a thinker. He is almost entirely unconscious, so his theories do not map onto his political behavior. Like the old-fashioned town at the entrance to Disneyland, Reagan's theories are nostalgic artifacts, decorations, and illusions. Like artificial plants and plastic fountains at a suburban shopping mall, concepts like free enterprise, fiscal responsibility, Christian values, and national defense decorate Reagan's unconscious polity in which the shadow economy of drugs, crime, and military spending exceed the conscious economy of the GNP. This economy of violence is now much greater than the old traditional business economy founded on the Reformation beliefs of the Protestant ethic and the spirit of capitalism. Precisely because Reagan is not a thinker, he is able to live with these contradictions without being aware of them. As an expression of the collective unconscious in an informational society, Reagan has become *the* historical expression of our unconscious polity.

Reagan's Star Wars is also a historical recognition that thermonuclear weapons are militarily useless for superpowers, because nuclear winter precludes their use against continental states, and their scale of destructiveness does not enable superpowers to project their power militarily, to control a sphere of influence, or to stabilize a region of critical resources. Since superpowers can afford large military expenditures, thermonuclear weapons are not attractive investments, precisely because they are costly and useless and take funds that could be better spent on the artificial intelligence systems that "smart weapons" require for more surgically precise

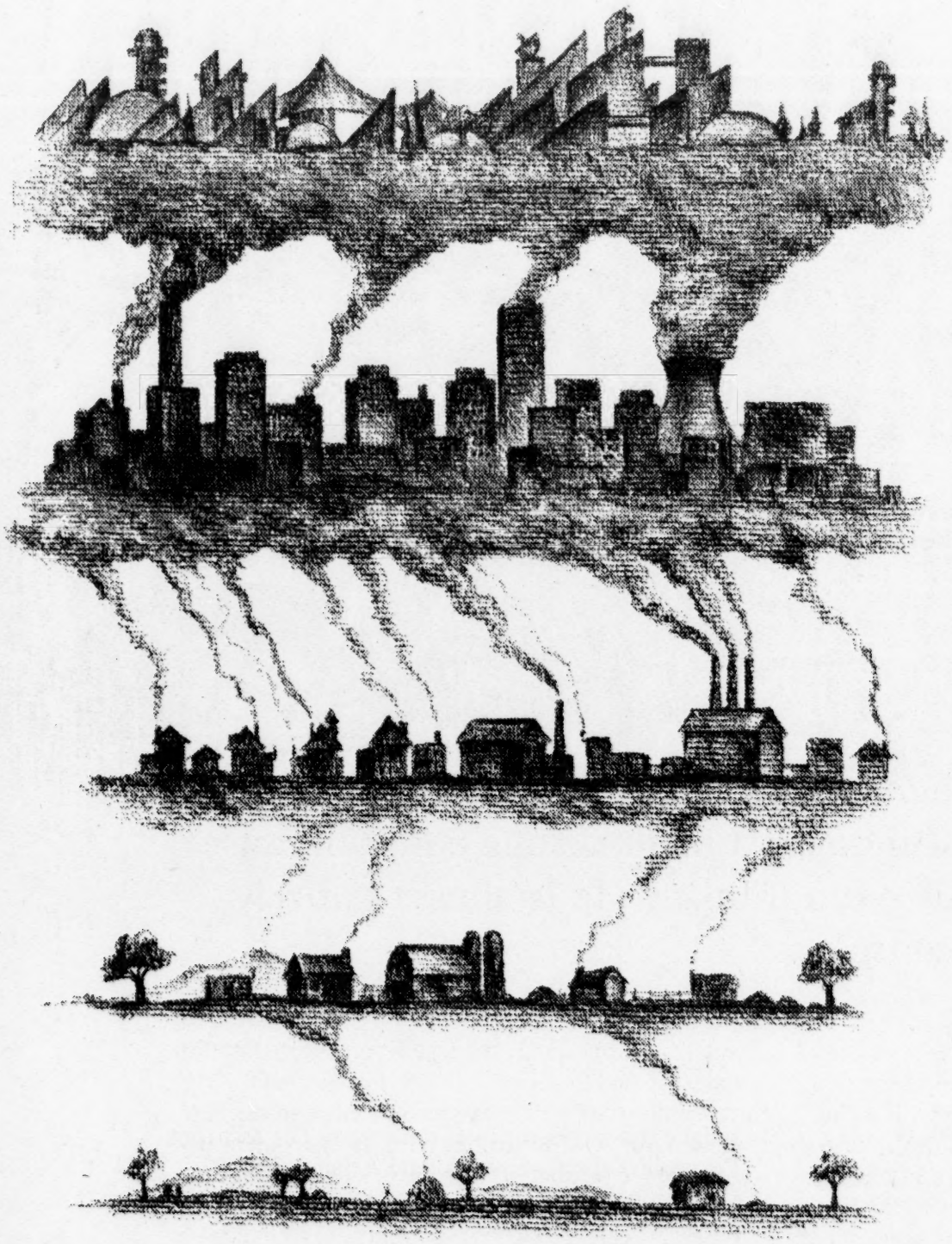
operations against global terrorism. In the bilateral hegemony in which Reagan telephoned Gorbachev to get permission to bomb Libya is a new recognition that though atomic weapons are no longer attractive for the superpowers, they are too attractive for smaller nations like Libya, Israel, South Africa, Pakistan, Iraq, and Iran; consequently a more limited and feasible anti-ballistic missile capability is desired by both the U.S. and the U.S.S.R. that could be used to prevent the firing of nuclear rockets in such critical resource areas as the Middle East or South Africa. Reagan thus finds himself in the contradictory position of needing to keep the Soviets as an enemy to support the new American economy, and at the same time sharing information with them so they both can keep the "punk" nations in line. Since both Three Mile Island and Chernobyl demonstrate that the high technologies of superpowers cannot be trusted to work without errors, it is clear that neither the U.S. nor the U.S.S.R. can feel safe from an accidental firing on either side; therefore, anything that makes one side feel threatened enough to move up to a state of red alert is to be avoided at all costs. Inevitably, the U.S. will have to stimulate its economy with Star Wars and secretly will allow the information to be stolen by the Soviets to insure that they will not drop out of the competition or become a spoiler or a punk nation themselves. Thus we can see that the end result of the arms race is a transnational planetization that could be called the U.S.S.S.R.

Reagan is the archetypal leader of our post-industrial unconscious polity because he is not a thinker. He is almost entirely unconscious.

The political entity that is the transitional form between the industrial nation-state and the planetary Gaian form of politics is, unfortunately, the State of Terror. Because we humans are primarily motivated by fear, fear is what we get in our political groupings. Our ruling politicians terrorize us with thermonuclear mutual assured destruction, and our aspiring revolutionaries terrorize us with visions of thermonuclear war that they hope will organize the masses behind them; outside these norms, the completely powerless and hopeless terrorize us through terrorism itself. In many ways, terrorism is a form of amateur government; the real professionals in the business of terrorism are, of course, the legally constituted nation-states. If one looks back into history to read descriptions of public executions, one can see that the landscape of terror has been an instrument of governance throughout the history of civilization, from the Assyrians to the Aztecs to the British. What has changed is that in an informational, electronic polity, there is no such thing as space separating the innocent from the guilty, so "innocent bystanders" in airports are chosen to attract public attention and to show that the invisible and stateless are indeed visible and able to involve those who thought that they were separate, innocent, and safe into the common lot of death.

Noise, pollution, crime, terrorism, and warfare all constitute unenlightened and unconscious forms of activity in which we say one thing and do another, in which we *are* one thing but *act* another. In each case we seek to expel an alien into an imagined external space that will permit us to continue our conscious agenda unchallenged by responsibility to the entire pattern of biological relatedness. But if noise is attended to, if pollution is transformed, and if enemies are seen to be intimate projections of our own internal life, then our political systems will

Pollution is a form of noise
in the transmission of human purpose
into the wild.



begin to change; they will move away from the mechanistic descriptions that shape our economic conceptions today to new organizations of the living taken from biology and ecology.

CONSIDER THOSE SEEMINGLY irrelevant areas of pop culture that conventional industrial economists ignore. For example, let us begin with the punks on the King's Road in Chelsea, London. The punks are an industrial proletariat that has recycled itself into an informational proletariat. Knowing full well that they were not needed by the upper and middle classes, not as slaves, serfs, or factory workers, they did not wait for the monetarists of Thatcherdom to tell them what to do with their lives, but entirely on their own, they went on to invent a lifestyle that spins off its own economy — a music industry, a fashion industry. These, in turn, spin off a music video industry and a whole series of associated magazines and newspapers. A new informational middle class begins to live off the creative energy and innovations of the lower class. Now, if one adds up the sum of all these transactions on a global scale, and then one divides this sum by "the dole" that the punks received as unemployed members of the working class, one will begin to see what a tremendous return on investment the dole represents. Perhaps the old notion of a guaranteed annual income would not be quite the drain on the economy that industrial-age economists project.

By way of contrast, and in the British spirit of fair play, consider all the money earned by nuclear power plants and the Concorde, then divide that sum by the "dole" given to the managerial class to stimulate the economy by subsidizing nuclear energy and the development and maintenance of the Concorde. Very few people are affected by the Concorde, but hundreds of millions of people are affected by the music industry, even the starving in Africa. And yet, in spite of all this economic and cultural enterprise, and, ironically, in spite of everything the punks do to become highly visible, Thatcher and her cronies cannot see them as anything but noise.

This illustration of economic development taken from popular music instead of "real" industries like coal or railroads, or oil and aerospace, is not as fanciful as it may seem. Envision two teenagers, one in Los Angeles, the other in Sydney, "jamming" together by playing self-composed, computer-animated music videos through the use of their own personal computers, modems with satellite hookup, and VCRs. This composition would be improvisational jazz and imagery that could melt away or, if the teenagers preferred, be saved on video discs. An electronic conferencing of a group of these teenagers would constitute a nightclub that was not simply located in space or time. In other words, two teenagers with personal computers and a VCR

would be able to create art forms that, a generation before, would have taken an entire recording and television studio. If we expand our imaginations to envision a jam session of teenagers all over the world, we will be able to see the emergence of a global polity. Such is planetary culture.

Reagan, for all his fundamentalist, Moral Majority rhetoric, is no Christian ayatollah, and he has done more to consolidate the shift from industrial to postindustrial than any president since Kennedy. Reagan's peculiar talent seems to come from the creative ability to entertain opposites, and perhaps this comes about because he has so little consciousness to get in his way. These apparent contradictions, however, are not so novel as one might think. Liberal, industrial England was ruled by the conservative collective representation that was Queen Victoria, and Nazi Germany was led by a nativistic leader who created an untraditional merger of technology and the State.

If we go further back into prehistory, we can see that this pattern of innovation disguised as conservatism has always been there. For example, in the period of the neolithic revolution, when humanity, thanks to women, was effecting the shift from hunting and gathering to agriculture, the iconography on the walls of Anatolian Catal Huyuk (6,500 B.C.) celebrated hunting. The economic structure of the culture is neolithic and agricultural, but the content is paleolithic. Similarly, when we look at the shift from medievalism to modernism, we see the same archaistic features. In Renaissance Florence, Cosimo di Medici is caught up in visions of Plato's academy and neoplatonic mysteries, but the structure of the new culture is based on new forms of communication in banking and art. And when we consider the next major historical shift, the shift from agricultural to industrial society, we find the same pattern: the structure of the Crystal Palace at the Great Exhibition in London (1851) is industrial wrought iron and glass, but the content is medievalism and romanticism.

IT GOES WITHOUT SAYING that Reagan is no cultural historian and has not modeled his behavior upon a study of neolithic Anatolia, Renaissance Florence, or nineteenth-century England; we must assume that whatever it is in human culture that produces this pattern is precisely the same collective unconscious force that throws Reagan onto the screen of history. In the literal Latin sense of the word, Reagan has a political *genius,* or is, at least, an idiot-savant. On a "Gala Night of Stars," one more reminiscent of Las Vegas than of New York, Reagan relit the Statue of Liberty with a laser. In the company of his Hollywood colleagues, Reagan gave America so clear a performance of its collective representation that it is now obvious, in his second term, that Reagan's use of the media to collectivize society is even more skillful than F.D.R.'s use of the radio in the Depression. F.D.R. used the radio, Hitler used the loudspeaker, and the Ayatollah Khomeini used the tape recorder, but no politician has ever used television so cunningly. Now even Reagan's opponents have to admit that he is not an actor become amateur politician; rather, he is the old-style politician who is the amateur public personality.

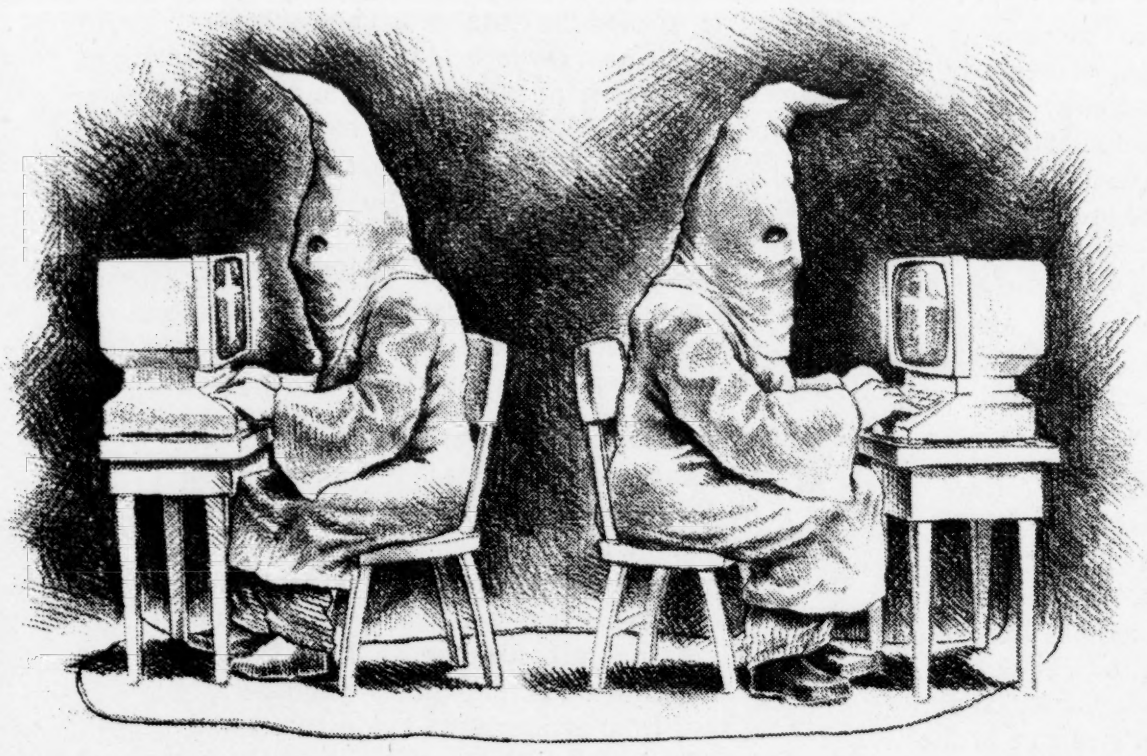
Disneyland in the 1950s foreshadowed the Reaganite politics of the eighties. By placing the old-fashioned Midwestern town at the entrance to the electronic city of *Homo ludens,* Disneyland followed the pattern of the Crystal Palace of 1851. It might be prudent, therefore, to wonder if Disney World in Florida, with its Epcot Center, may be foreshadowing the American politics of the nineties. The fantasy model for Reagan's foreign policy does seem to be Disney World's Epcot, a participatory movie set where nature is a miniaturized antique and nation-states have become decorative and harmless, like boutiques and ethnic restaurants in an American shopping mall.

Considering that such multinationals as Shell and Nestle have transferred billions in investments from the Third World into America, and considering that America is now a debtor nation no longer owned by its citizens, it seems as if the world is saying that it believes that the U.S. is going to make the transition from civilization to planetization. In this quantum leap up to a new level, perhaps one even greater than the shift from agricultural to industrial, they do not want to be left behind in the nativistic position of an anti-American Iran. Star Wars, much like a display in Epcot, is an illusion and a piece of pure show business, but the *structure* of its economy could still be kept long after Dr. Teller's X-ray-laser explosions were eliminated.

In a global economy with an $80 trillion flow, it is difficult to say that this movement is backed up by anything such as land or gold. Currencies are good not because they are backed up by goods, but because people believe in the viability of the nations which issue them. Nations are now marketed and judged the way companies once were. The fact that European, Middle Eastern, and Asian capital is flowing into the United States means that some people are betting their money that the U.S., with its Harvards, Berkeleys, and Stanfords, its M.I.T.s and Cal Techs, is going to make it.

This shift is not simply a change in ideologies, but a systematic reorganization of human culture as *representation* gives way to *participation.* For John Locke, ideas were mental representations of the outside world; Parliament was the brain of the body-politic, filled with representatives of the society at large. The mind carried a little picture of the world inside its head. Parliament carried a little picture of the outside polity within its chambers. Paper money carries a little picture of national gold and land within its rectangular form. In the emerging Gaian politics, however, the brain is no longer seen as the house of representatives. The isolated citizen once represented by a politician is exchanged for the participatory individual living as a symbiotic organelle empowered by information in an environment that

In this world of global communication and total aloneness, solitary individuals can use their modems and electronic bulletin boards to form fascist or racist groups.



is not structured by institutions such as church and state. A good example of this political shift is expressed in Greenpeace's ability to challenge the nation-state of France over the sinking of one of the organization's ships (which killed a photographer in the process) and have the Secretary General of the United Nations arbitrate its case.

The economic analog of all this is that money is no longer seen as standing for reality. Money is no longer backed up by national land or gold, but by the belief in a nation's productive capacity for scientific innovation. The Gaian economy creates its own values in transactions. Since cultural transitions such as the one from hunting and gathering to agriculture, or from agriculture to industry, are so unpredictable, the behavior of this new economy is without precedent and takes on the quality of a self-fulfilling prophecy. If the debtor nations default, and if the world at large begins to believe that the U.S. cannot make the transition to a new planetary culture, the U.S. won't. Part of the Gaian politics for the nineties is, therefore, to realize that we are all organelles within a planetary cell, and that it is a dangerous illusion to think that any nation-state can make it on its own, militarily or economically.

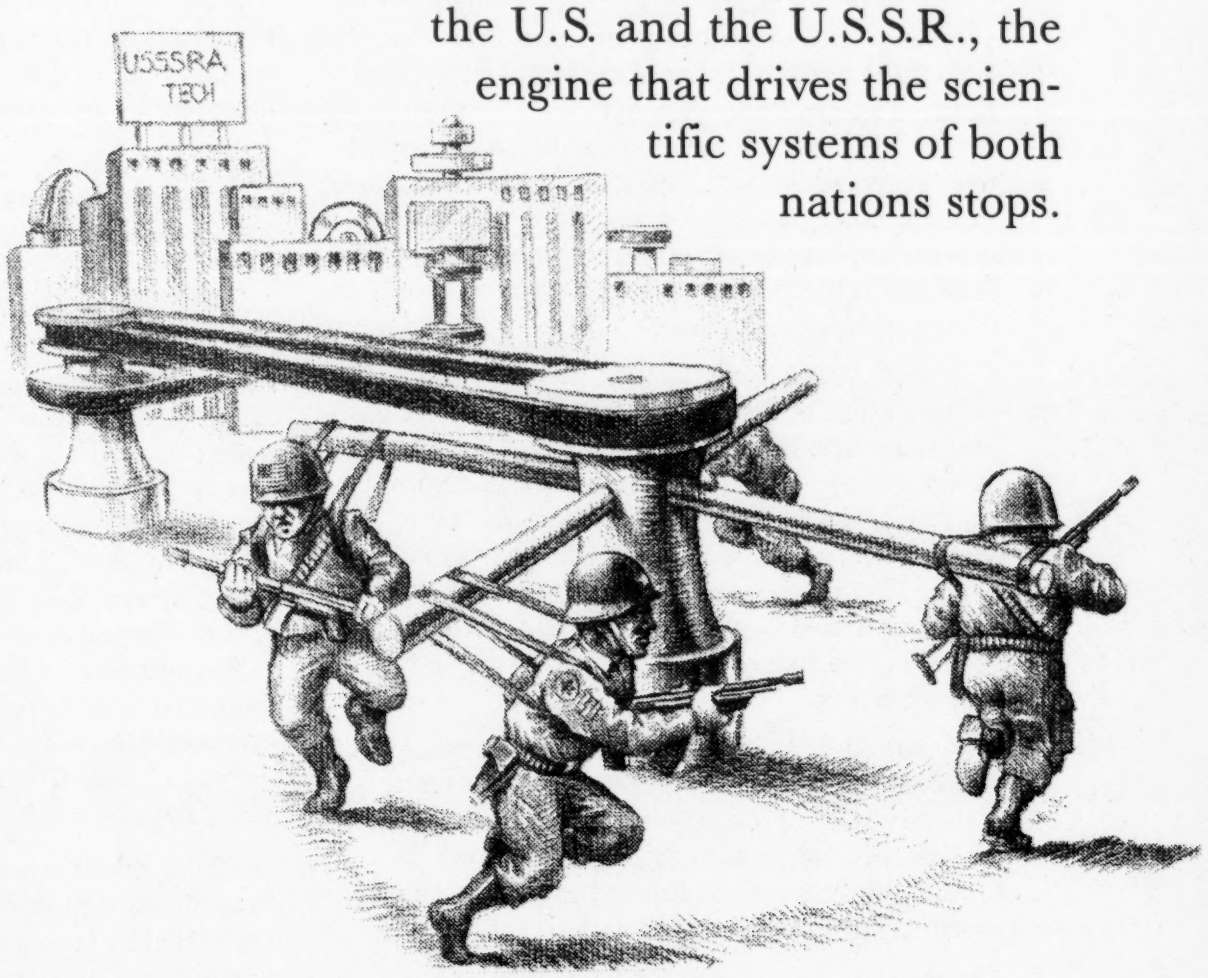
The interpenetration of all into each argues that territorial sovereignty is also a leftover from the representationalist paradigm of the seventeenth century. Greenpeace can intrude into the politics of France, and Nestle can buy up Carnation in the U.S.A.; Chernobyl can ruin the agricultural produce of Eastern Europe, and middle-class American college students on cocaine can sustain the Shining Path along the Peruvian Andes. Voting for one's local representative in congress or parliament does not give one a handle to the door of this new world; it merely shuts one out, and the citizen knows this. That is why participatory groups such as Greenpeace are so much more charismatic than elections in our global electronic culture. Considering the power of electronic modes of communication in transforming culture, it is fair to say that there is more of a future for political entities like Greenpeace, Amnesty International, or Africa Live Aid, than for industrial nation-states trying to extend nineteenth-century patterns of imperial domination, from Europe into the South Pacific.

But there is also a shadow-side to the shift from representation to participation. Representation expresses the culture of a civilized consensus. In the time of Thomas Jefferson, a civilized man had only to read one or two hundred books to be educated; now a hundred books are what appear in a single specialty within a year. It is in this world of global communication and total aloneness that solitary individuals can use their modems and electronic bulletin boards to form fascist or racist groups such as the Aryan Nation. It is in this world of fragmentation that fundamentalism and terrorism seek to melt the bits to molten lead, for, unfortunately, terrorism is also an extremist form of *participation* replacing *representation* in electronic politics.

UNDOUBTEDLY, nativistic movements that are ideologically reactionary and simplistic will continue, even in the U.S., but those in the U.S. will most likely fail. As we have seen from American TV, television evangelists are no different from rock stars or Hollywood celebrities, and as the fundamentalist viewer flips from channel to channel, changing realities from westerns to science fiction, from soap operas to news, from one part of the world to another, he is participating in and performing with a sensibility that is radically different from that of his Reformation forebears. The only way that Reformation culture can maintain the "Gutenberg Galaxy" is to eliminate television in an Amish-like purity of freezing history at an earlier moment in time. And, probably, some fundamentalists will try this when they begin to wise up to the fact that Reagan is not one of them, and that evangelists on television are not ministers of the Bible, but ministers of the media.

The U.S., of course, is too far gone (thank God) to turn back and lock itself into an Aryan Nation. The U.S. is more addicted to TV than to cocaine, and its continental polity has become even more multiracial than it was in the nineteenth century. Now it is no longer simply a case of integrating Italians, Irish, Jews, and Blacks, but also Mexicans, Cubans, Vietnamese, Koreans, and Japanese. As New York was the quintessential city of the U.S.'s nineteenth- and early twentieth-century expansion, so now Los Angeles is the quintessential world city of its electronic culture. In the earlier print culture, the public school teacher could take the child away from its parents' old world culture to make it all-American, but in the multichannel culture of television, ethnicity is reaffirmed and immigrants keep their languages, such as Spanish or Korean. In fact, Americans begin to develop new ethnic languages like jive. The world of electronics is Top and Pop culture; it is an energizing of opposites: the elitist science of Stanford, Cal Tech, and Silicon Valley and the media and musical reproductions of Hollywood.

If one eliminates the difference between the U.S. and the U.S.S.R., the engine that drives the scientific systems of both nations stops.



This structure of opposites is economically very important, for one of the reasons so much of the world's capital is flowing into the U.S. to finance the planetization of humanity is precisely because the U.S. is so multiracial and is not locked into a rigid class system such as that of Britain.

The cultural symbiosis of Top and Pop is the secret of America's present strength, and this strength will most likely continue into the twenty-first century. Japan is not going to replace the U.S. as a world power, for Japan is an island culture, and as such lacks the diversity and imaginative daring to take on the role of world leadership. It is strong precisely because after losing the war it immediately chose to become an organelle within the cell of the American world economy, and in that position it could flourish and thrive. For Japan to try to reverse the situation and make the U.S. an organelle within the cell of Japan, Inc. would lead to a massive stretching and distortion that would simply tear Japan apart. Its present position is strong precisely because its present position is its strength.

If the U.S., on the other hand, is to continue to grow in the shift from civilization to planetization, it will have to relate to China as well as Japan and Korea, and in this Pacific world the white-racist mentality of the nineteenth and early twentieth centuries will be dead wrong. American business, from Nixon to Reagan, knows this and has already decided on the Pacific shift in the economic and cultural centers of America. It is only the passed-over and uneducated "poor white trash" who feel threatened by the dynamism of the Asian peoples in the universities of the West and who are attracted to nativistic movements like the Aryan Nation and Posse Comitatus. It happened before when the dispossessed whites who were left behind by the Industrial Revolution that swept over the North after the Civil War were similarly attracted to the Ku Klux Klan. In the historical long view, Reagan, like an inoculation that gives us a little dose of the disease to save us from a lot of it, may just have saved the U.S. from white racist fascism by playing the role of Right-Wing American President for the Moral Majority.

IF NOISE HOLDS the unrecognized signal of innovation, if evil is the annunciation of the next adaptation, if the arms race with the Soviet Union is creating the U.S.S.S.R., if drug traffic is integrating the debtor economies of the U.S. and its Latin neighbors, and if pollution is bringing us all under a cloud that moves without respect to the boundaries of nation-states, then what is the role of the good in this cultural transformation? Is only evil all-powerful, and is the good always inane and impotent?

The point of the ancient Buddhists was, of course, that good and evil are in codependent origination, and that good is not absolute and transcendent. Those who cannot see the evil and unenlightenment in themselves, in their own conditions of suffering and samsara, project it outward and inflict their

goodness on others, turning a disconnected and uncompassionate virtue into an abstract kind of cruelty. This is the mode of the extreme moralist, a Rabbi Kahane, an Ian Paisley, an Ayatollah Khomeini. The person who feels compassion can sense his own internal capacity for evil, and therefore has compassion for others, even those who have been momentarily taken over by evil. In other words, the good Buddhist is like a good Christian and loves his enemy as Jesus counseled.

One needs another word beside good for this balance point at the center. Christians would call it love or *caritas*, Buddhists would call it compassion or *karuna*. From this new perspective, the world is essentially the same and quintessentially transformed. As in a move in the martial arts of Aikido or T'ai Chi, all the inertial mass of the evil opponent is deflected, and by the slightest and subtlest of moves, the enemy is sent to the ground to find his own center.

What would be the slightest and subtlest of moves that could transform our political world from a planetary state of terror to the Gaian polity of compassion, of com-passion or passing with others through the catastrophe that is the discontinuous transition from one world-system to another?

The martial arts would teach us to take what is given, and slightly redirect its energies; to take the form in front of us, instead of waiting for the Messiah or the end of the world, and transform it. So, let us consider the political forms of activity that are in front of us, and imagine what their slight transforms might be.

The arguments in support of *present forms* fill up the media, so rather than waste time on them I would prefer to give my reasons for the proposals under *future transforms.*

Anyone alive in this historical moment faces societies that are totally structured upon warfare. The governments, the communications systems, the sources for technological innovation, and the entire economy of the United States is held up by the arms race. Any pacificist who comes along and says, "Disarm!" hasn't a chance in hell. Some pacificists love projects that fail because failure gives them a sense of sanctification in a fallen world; other pacifists are simply violently aggressive personalities that conceal their aggressions by screaming for peace. This is the kind of pacifist who thinks he is helping the peace movement by throwing blood on a military officer. Such forms of opposition only confirm the opponents in their mutual positions, and thus energize the game of pacificism versus militarism, a game as useless as that of wealth celebrating the virtues of poverty in the institution of the Papacy.

Confronted with a war economy, one has to build down slowly and shift employment to other areas. The difficulty is that citizens and politicians will only vote for subsidies under threat, and so there always has to be a threat from the enemy or the environment to mobilize a society. But if people really begin to feel threatened by the warfare system, if they really begin to see, after Chernobyl, that we cannot trust the Russians to man their nuclear deterrent with a fail-safe system, then, perhaps, the

Present forms	*Future transforms*
1. Star Wars.	1. A transnational program for the exploration of space.
2. Pershing IIs and cruise missiles to defend Germany.	2. Withdrawal of all Pershing IIs, cruise missiles, and atomic weapons from West Germany and the transformation of the German army into a Swiss-style civilian militia.
3. The United Nations as a failed world government and global police force.	3. The U.N. as a world Harvard, a world Academy of Arts and Sciences serving as the third house in a tricameral legislature in which the nation-states have upper and lower houses, Lords, and Commons, Senate and Congress, but that all nations have the U.N. as their third house to provide research and recommendations for such long-term problems of human civilization as the greenhouse effect, acid rain, drug traffic, human rights, etc.
4. International Monetary Fund as a "device for taking money from the poor in rich countries and giving it to the rich in poor countries."	4. Establishment of planetary land grant colleges, "Gaian colleges," as bioregional resource centers to set up the beginnings of an informational economy in impoverished areas like Chad or Haiti.
5. Subsidies to selected institutions or favored groups, such as nuclear industry, the oil business, farmers.	5. An American Expression Card, or direct venture capital to each citizen in lieu of guaranteed annual income: a sum of $50,000 is granted to each individual at age of majority for starting a business, subsidizing a college education, or letting money earn interest until citizen decides upon a personal investment. Citizens who did not feel competent to invest could leave the money in what would be, in essence, a national mutual fund.

citizens will begin to understand the need to have a vigorous space program as a way of keeping the Star Wars economy going with more stars and less war.

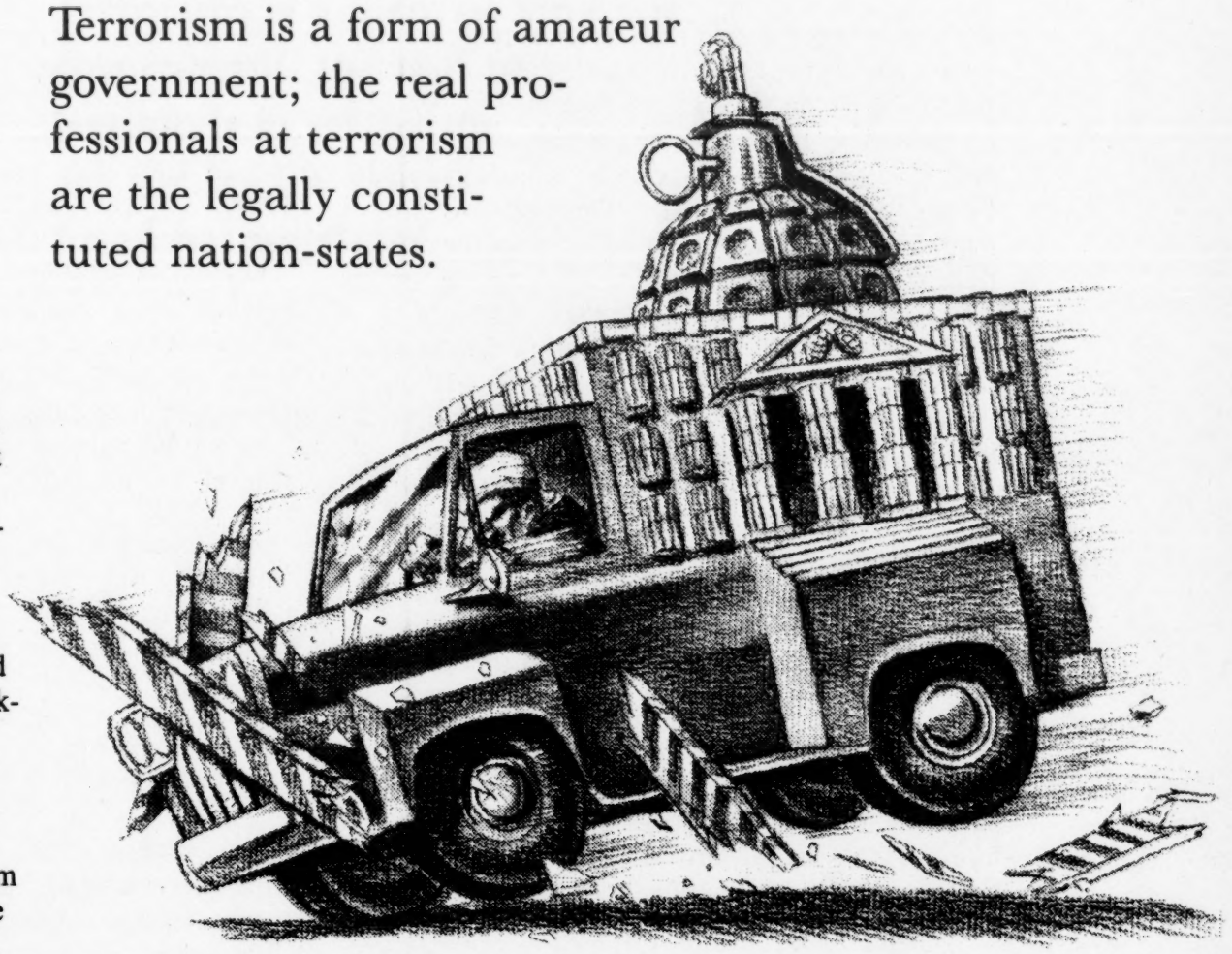
In his second presidential debate with Senator Walter Mondale, Reagan proposed sharing Star Wars with the Russians. His generous flourish of "Why not share it with the Russians?" was a brilliant rhetorical move, for it made him into the liberal and Mondale into the cold-warrior conservative, a position that Mondale could not convincingly maintain, since he could hardly upstage Reagan on talking tough to the Soviets. It was precisely these kinds of maneuvers that enabled Reagan to steal the future as political mythology away from the liberals and emerge as the new champion of futurology, scientific innovation, and the space age, which, considering Reagan's level of reading and scientific literacy, is no mean feat.

The difficulty is, of course, that Reagan was playacting. We already have a satellite reconnaissance technology years ahead of the Russians, but we do not seem willing to share that with them now. So if we won't share now while we are ahead, why will we share later?

Still, that uncanny intuition of Reagan was right, even though his political colleagues would never want to follow him. We should share with the Russians, but now, not later. Anything that makes the Russians feel paranoid and insecure threatens our security. If we get close to building a real anti-ballistic missile system, the Russians would have to launch a pre-emptive strike before we completed it. Of course, Reagan's *real* strategy is to force the Russians into an expensive arms race in the hope that their strained economy would collapse before ours. But that, too, is dangerous, considering the fragile condition of the world economy. With our $2 trillion indebtedness, it is a high-school game of economic chicken to see who collapses first, us or the Russians.

But let us assume our media leader is right: we launch into Star Wars and create a new third industrial revolution that puts the Soviet Union back into the status of a Third World, underdeveloped country, and we interlock all the economies of Western Europe and Japan into "Trilateral" subcontractors for the new Space Age. We should recall that it was a humiliated and defeated Germany after Versailles that led to the rise of Hitler. Old Russia,

Terrorism is a form of amateur government; the real professionals at terrorism are the legally constituted nation-states.



no longer endowed with the face-saving position of being the equal of the U.S., a mythic identity bestowed on it by Nixon and Kissinger in the Brezhnev era, would have no choice but to play the spoiler. Since we have seen what kind of chaos spoilers with ravaged pride and identity can do, whether they be Palestinians, Libyans, or Iranians, it would be wise not to push the Soviet Union down. It would be safer for all to start sharing the satellite system of reconnaissance immediately, so that everyone knows what everyone else is up to.

The human gesture of shaking hands was invented as a way of showing that the hand did not conceal a weapon. It is a nice custom, one that was raised on high when the cosmonauts and the astronauts linked up in outer space and shook hands. We need to go back to that point and take it from there.

If expensive forms of mutual defense are replaced by simpler forms of mutual security, then the whole World War II structure of the world-system can, finally, change. Indeed, the best way to avoid World War III is to stop fighting World War II, and this brings me to the point of my second future transform.

Part of the condition of the global State of Terror is a kind of thinking in which Mutual Assured Destruction, or MAD, constitutes a sound policy for national defense. Since no one is literally defended in such a situation, the result is simply that national populations are held hostage by military-technical elites: the truly professional terrorists of the world. If shared satellite reconnaissance would enable the Russians to feel less threatened behind their sacred

borders, then Europe could continue to contribute to Russian security, and thereby to mutual security, by not having the offensive capacity of decapitating the Soviet Union through the stationing of Pershing IIs in Western Europe. If the German army were converted to a Swiss-style civilian militia, it would be possible to *defend* Western Germany without a military force that was offensively capable of destroying the Soviet Union. If the American troops were to leave Germany as a clear expression of ending World War II, then the Warsaw Pact countries would begin to have increased trade relations in the world economy, and the demands for liberalization, already pronounced in Hungary, would begin to be characteristic for Eastern Europe as a whole. What helps the Soviet Union keep Eastern Europe under tight control is the nuclear threat from the West. If this is dropped, then Eastern Europe will begin to evolve culturally along new lines that are no longer the outlines of the Cold War of the fifties.

If Western Europe begins to participate vigorously in a Transnational Space Program, then these planetary forms of knowledge will give a new historical role for the United Nations. The United Nations is currently a postwar creation as out-of-date as NATO. It has never been able to stop a war and has been a miserable failure as a vision of men beating their swords into ploughshares, but if it were allowed to be truly a world cultural organization and not a political organization manque, it could mean more than a Manhattan lifestyle for global bureaucrats.

IN THE CULTURAL evolution of civilization from print to electronics, societies need to shift from the bicameral legislatures of the days of Locke and Jefferson to tricameral legislatures. The notion of a bicameral legislature is one of balancing urgency with reflection. The lower house is intended to respond to the needs of the moment, the Senate or the House of Lords is supposed to express age, wisdom, and the longer civilizational viewpoint. In a scientific, planetary civilization, however, the longer viewpoint requires more than a gentleman's knowledge of history and the classics. When confronted with problems like the greenhouse effect, acid rain, the poisoning of the oceans, global drug traffic, world terrorism of transportation, or human rights in general, knowledge is needed along with wisdom. No nation is ever likely to surrender sovereignty willingly to a world state, and a good case can be made that a world state would be at once bureaucratic, ineffective, and tyrannical. But every nation does surrender to the information that comes to it from global forms of communication, world science, and popular art forms like music and movies. If the United Nations were to become a global Harvard-M.I.T. with bioregional resource study campuses spread around the world but communicating through electronic networks, it could become a planetary Academy of Arts and Sciences that could make reports and recommendations to the bicameral legislatures of the nation-states.

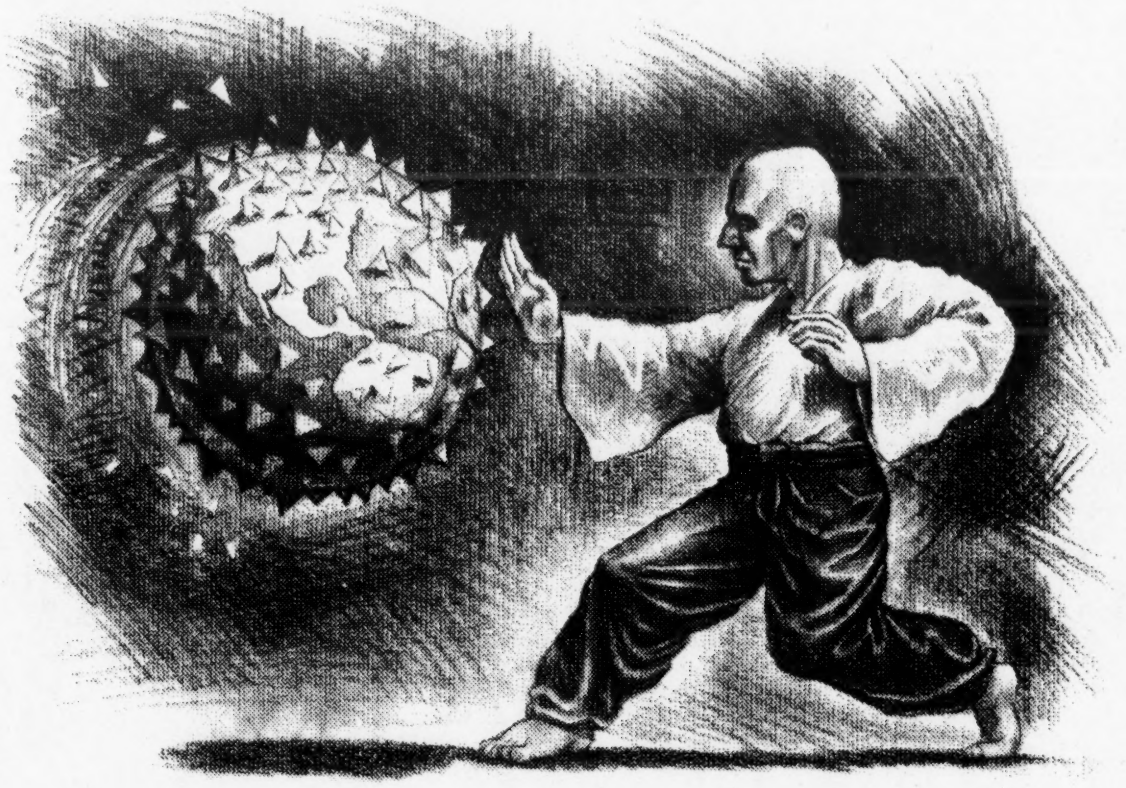
Small planetary, Gaian colleges could become the twenty-first century's equivalent of the land grant colleges that the United States set up in the nineteenth century to develop the country. One of these land grant colleges became Cornell University, which is now a wealth-producing, and not merely a wealth-consuming, world university. If the United States and the Soviet Union were to agree to build down their intercontinental ballistic missiles, one Trident submarine would more than pay for several of these Gaian colleges.

It is important to keep in mind that when I say "college," I don't mean simply Ph.Ds from Harvard on salary in Chad or Haiti. I envision something much more like the Land Institute in Salina, Kansas, or the Meadowcreek Project in Fox, Arkansas — institutes in which local people are colleagues and not merely subjects of research for national elites.

The former postwar development scheme was simply the Americanization of the planet. Loans would be given so that markets for American goods and banks would be created around the world. Dams would be built, jet planes would be sold to dictators, and village agriculture would be bulldozed so that American agribusiness could establish itself. Now forty years after this 1946 vision of world progress, it is time to say that this scheme for development has been a miserable failure. The rich have gotten richer, the poor have gotten poorer, and the middle class has been eliminated in the crossfire between fascist repression and communist liberation. This scheme of development has been good only for the makers of jet fighters, machine guns, dams, and nuclear reactors.

But the lessons to be learned from the failure of these schemes of Third World development can also be brought home to the so-called developed countries. Development schemes have not worked abroad, and domestic development schemes have not worked within the U.S. The failure has come from trying to give only to *favored* groups or institutions, whether through oil-depletion allowances, farmers' subsidies, or the complete underwriting of entire industries, as with the case of nuclear power. A shift in paradigms would call for providing venture capital directly to *each* citizen as part of his *participation* in the national economic community. If upon reaching the age of eighteen each citizen were to be granted a venture capital fund of $50,000, it would do more to stimulate the economy than subsidizing nuclear power or the oil business. If two California teenagers in a garage can start Apple Computer Company, and if teenagers at large can create vast markets and industries in music and video, it is clear that the archaic industrial mentality that subsidizes behemoths like nuclear reactors but balks at giving money directly to its citizens is simply incompetent business.

The new technologies now make it more possible than ever for a group of teenagers to band together and create their own works of art and business. Of course, some teenagers will use the money to go into the drug business, but with a direct venture capital fund available to them, the economic motivation to be drawn into the shadow economy will be lessened, and kids in ghettoes will be given a choice that they now do not have. For some, this may mean using the funds to finance a university education; for others, it may mean starting a business; for others who are not ready, it may simply mean letting the money stay put to earn interest in what would be, in essence, a citizens' national mutual fund. This "American Expression Card" would be the citizen's patrimony and the visible sign of his participation in the Gaian economy in which all invest in each, and each creates new economic worlds for all.



The martial arts teach us to take what is given and redirect its energies.

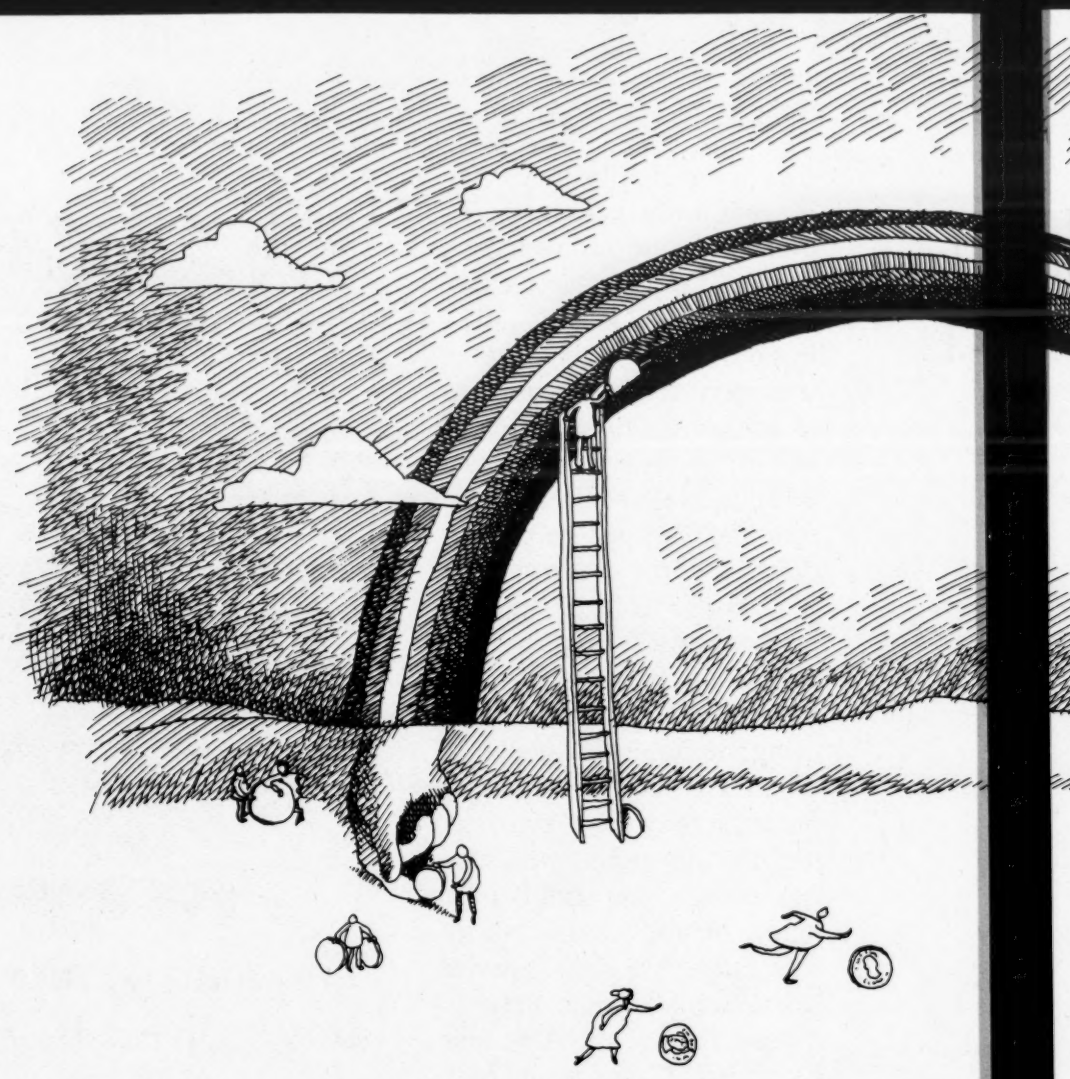
This pacific shift of Star Wars from war to peace would enable many more of the U.S.'s new immigrant population to participate in the economy. Star Wars is fine for places like North American Rockwell and Livermore Labs, but the rest of the population is turned into fast-food clerks peddling burgers to the aerospace workers. An economy of direct venture capital for the citizen would cost less than Star Wars, stimulate the economy more effectively, and would be popular enough that citizens would not need to be scared to death to vote for the subsidies it would require.

IF ONE TAKES all of the five future transforms together, they form a pattern, a slight aikido move that is necessary to transform the militarism of Reagan into a new populist liberalism for a transformed Democratic Party in the nineties. If the Democratic Party remains the party of the industrial past, of labor unions and ethnic blocs, it will, like Mondale, become a fossil. And if the Democratic Party tries to become identical to Reagan's party and to woo the same constituency, it will only prove itself to be shallow, thought-less, opportunistic, and completely lacking in credibility as well as power. If, on the other hand, a new American ecological party were to try to make it on its own, such a movement on the Left would generate its mirror-opposite on the far Right, and Lyndon LaRouche's thermonuclear fusionists would probably match the Greens vote for vote, with each party taking about 15 percent of the electorate. It would be far better for the Democratic Party to take the best of the ecological party *and* the best of American Big Science, to move the new ethnic majority in defeat of the white suburban affluent constituency that supports Reagan. Paradoxically, it is this new Latin and Asian America that is more truly expressive of the California culture that first put Reagan into power.

I doubt if the Democratic Party will adopt Gaian politics in 1988; most likely it will try to copy the Republicans with someone like Iacocca, and our politics will be the typical American cultural situation of Avis and Hertz, Pepsi and Coca-Cola, McDonald's and Burger King. But history is full of surprises like Chernobyl, so I would imagine that by 1992 this awful generation of the fifties, these hideous reruns of the anti-intellectual McCarthy era, will have spent themselves. Just as the sixties introduced a quantum leap in consciousness for the whole human race, so will the nineties take us up one more step. It won't take a national charismatic leader to effect such a cultural shift, for by the nineties the generation of the sixties will be spread throughout the establishment as corporate presidents, as politicians, as popular musicians and video artists, as university leaders. As they look around and see themselves in position, they will remember, and those camp-followers who now celebrate their neoconservative orthodoxy will change spots and drag out their old sixties credentials and begin to boast about how many demonstrations, love-ins, and rock festivals they took part in. Once again, it will be fashionable to be idealistic, and patriotic, not simply for Springsteen's "U.S.A.," but the entire planet. Such is the fantasy of one who came of age in the sixties, and such is my fantasy of a new Gaian form of politics for the nineties. ■

UNIVERSAL STOCK OWNERSHIP

A WAY TO REDISTRIBUTE INCOME WITHOUT WELFARE OR TAXES



by Stuart M. Speiser

illustrations by John Dykes

In the 1930s, promising to make "Every Man a King," Huey Long built a national constituency around the proposition that all Americans were entitled to a home, a car and a radio. In the 1960s, Robert Theobald found a national audience for his guaranteed annual income proposals. In 1972, in the thick of the Democratic presidential primaries, George McGovern promised a $1,000 Treasury handout to everyone who needed it.

The reason these schemes have fallen out of favor is not that Americans have become more greedy (as many on the left contend). It is that Americans have become more economically sophisticated. Most Americans are now — quite rightly — concerned that "Every Man a King" schemes would require massive new taxes, discouraging initiative, or lead to staggering new government deficits. Their quarrel isn't with the goal of an equitable society, but with the traditional populist means for getting us there. If a share-the-wealth scheme could be devised that would not require massive new taxes and would be good for the economy as a whole, most Americans would probably favor it.

Enter Stuart Speiser, international lawyer, honorary board member of the Journal of Post-Keynesian Economics, *and self-proclaimed "social capitalist." Speiser has come up with a scheme that would achieve a (drastic) redistribution of income without confiscation of the rich or any new taxes at all.*

Speiser says: "McGovern's proposal would have produced 'socialist income,' taking money from wage-earners through taxation and transferring it to needy individuals. My proposal is based upon 'capitalist income' — giving every citizen the chance to share in the profits of our leading companies. Some people believe this is merely a cosmetic difference. I believe it's crucial." —Mark Satin

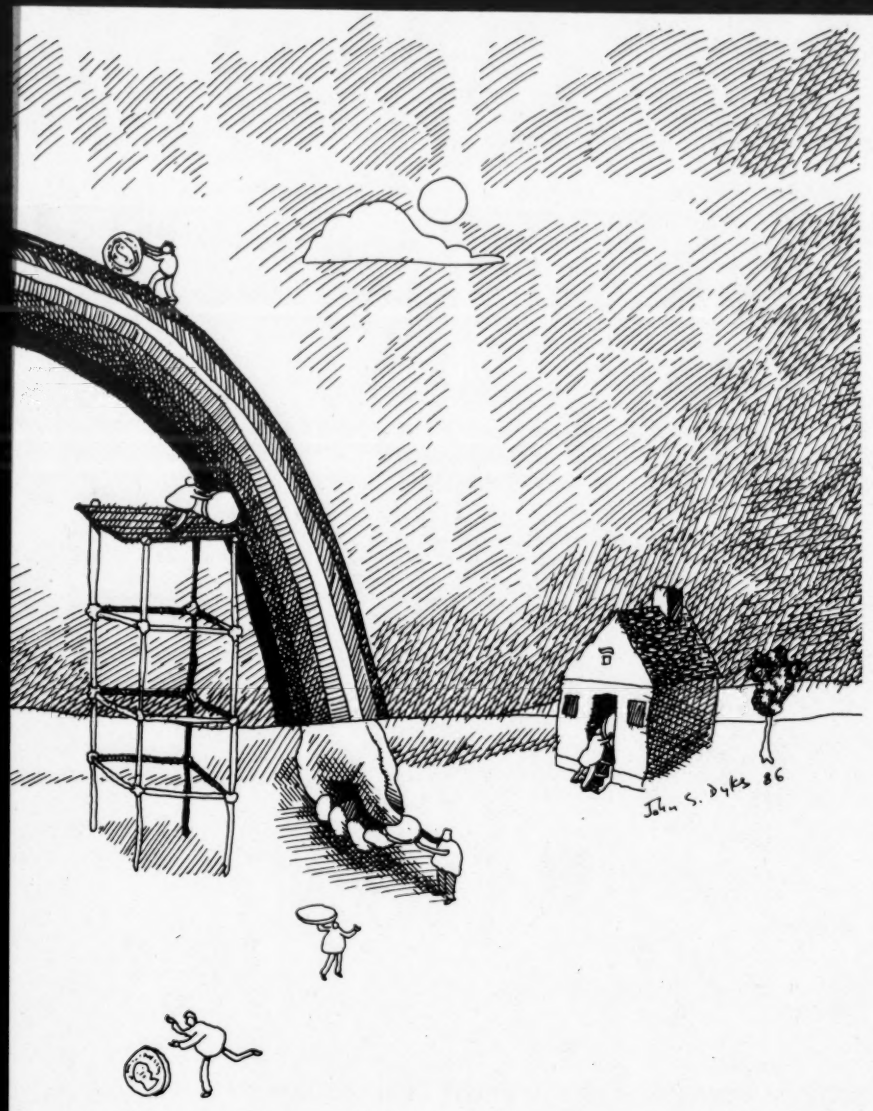
This article first ran in Mark Satin's refreshingly thoughtful newsletter New Options *(P. O. Box 19324, Washington, DC 20036). The author, Stuart Speiser, elaborates on his capitalist redistribution theory in* The USOP Handbook *($4 postpaid from the Council on International and Public Affairs, 777 U.N. Plaza, New York, NY 10017).* —Kevin Kelly

HOW CAN WE CREATE an equitable distribution of income in this country, without confiscation or increased taxation?

Americans obtain their financial support in four ways: wages, welfare, crime, and return on invested capital. Wages have traditionally been our method of spreading the wealth. But in an increasingly automated era it has become apparent that no government — regardless of political bent — can create enough jobs to support everyone through wages.

At the same time, mounting evidence both here and abroad indicates that the attempt to create equitable distribution through welfare, Social Security, and other transfer payments is inherently inflationary.

The first three methods of support (wages, welfare, and crime) occur in virtually all economic systems. Only the fourth method is unique to capitalism. But so far the politicians in capitalist nations have allowed return on invested capital — "capitalist income" — to be restricted to a very small pinnacle class. As Ronald Reagan said in 1975, "Roughly 94 percent of the people in capitalist America make their living from wages. Only 6 percent are true capitalists in the sense of deriving their income from ownership of the means of production."



It is time to fashion capitalist income into a new political tool to solve our economic and social problems. In diffusing ownership of the means of production, we may find a solution to the unfairness of American capitalism.

Every person a capitalist

Is there anything inherent in capitalism that would prevent us from spreading ownership of the means of production to all of our people? You will search in vain for any such restriction in the Constitution or laws of the U.S. Yet most economists, even liberals, have not opened their minds to such a concept.

There is no reason why capitalism cannot function when the means of production are owned by the majority rather than a minority. In fact, if we could find a way to open ownership of the means of production to all Americans, we could make our economic system consistent with our political democracy and our concept of fairness.

There *is* a plan to make capitalism work for everyone. I call it the Universal Stock Ownership Plan (USOP) because it makes corporate stock available to everyone. Its purpose is to spread ownership of newly formed capital throughout society, enabling the noncapitalist 94 percent to derive income from direct participation in capitalism. Because its purpose is to spread *newly formed* capital, there would be no confiscation of wealth and no need for new taxes.

Hidden reservoir

There is a vast hidden reservoir of unowned wealth in this country in the form of the *new capital* created each year by American business. This hidden reservoir of wealth could be the source of a substantial amount of income for those Americans who presently own little or no capital. (Capital, in this context, does not refer to money, but rather to the plant and equipment that companies build or buy every year.)

This new capital is what capitalists call "self-liquidating." It is designed to *pay for itself* out of the increased profits flowing from expanded production. So, for example, the cost of constructing a new automobile factory will be covered by the sale of new cars rolling off the factory's assembly line.

This new capital is designed to pay for itself *regardless of who owns it:* a wealthy investor, a struggling janitor, anyone. In theory, then, anyone could become an owner of this new capital — *if* he or she were extended the necessary credit with which to purchase shares of stock in the companies creating the capital.

In practice, however, credit for the purchase of stock or other income-producing capital is only available to those who already have savings or other holdings — those who can provide good collateral for loans.

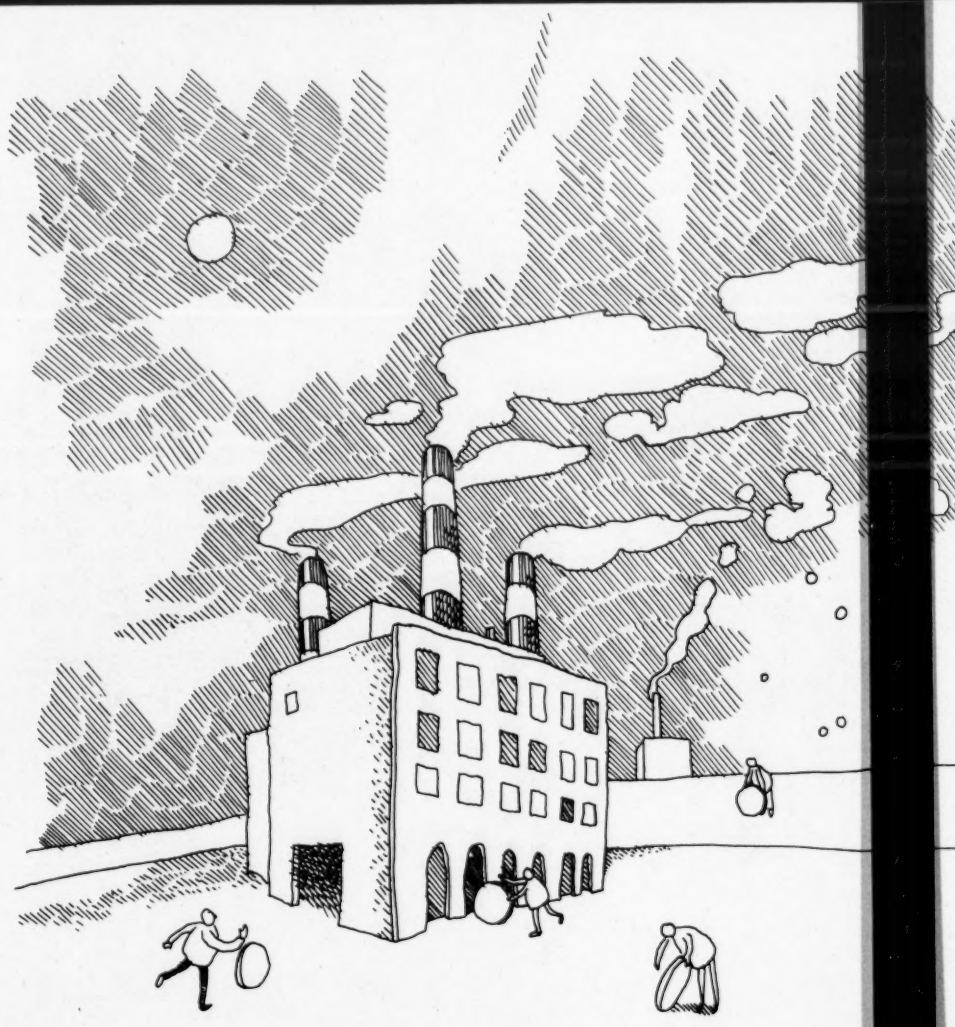
In 1985, American business invested over $300 billion in the construction and purchase of new plant and equipment. Under our present system, 95 percent of these new capital expenditures is paid for by a combination of debt (loans or bonds) and internal funds; 5 percent is financed through the issuance of new common stock.

The main vice of this system is that it perpetuates the overconcentration of capital ownership:

- Billions of dollars are kept bottled up in the corporations for capital expenditures. Wealthy stockholders believe this practice serves their interests, for they would otherwise have to pay income taxes on substantial dividend income. They prefer to have this money remain in corporate coffers where the value of their holdings can increase untaxed.

- Even the 5 percent of capital expenditures paid for by the issuance of new stock can be owned only by those who have cash savings or credit.

As long as this system remains intact, so too will the process of concentrating ownership of the means of production in the hands of a mere 6 percent of the population. There is, however, nothing sacred or immutable about this system. It is simply one method — and not necessarily the best method — of financing a modern economy. ►



The plan

The Universal Stock Ownership Plan is designed to make stock ownership in America's 2,000 leading corporations available to everyone through a system that would funnel ownership of new capital directly to the 50 million households that now own little or no capital. To understand how it would work, let's take as a case the fictitious Peerless Pizza Parlors Corporation, which we shall imagine as one of the nation's 2,000 leading corporations.

Let us assume that Peerless is building a new plant to meet increased demand for its new pizza oven. Thus Peerless is creating $10 million worth of new capital *that is not presently owned by anyone* and that will *pay for itself* over time through the increased production and sale of pizza pies.

Under our present corporate system, Peerless would finance such expansion primarily through internal funds and debt, which automatically funnels ownership of 95 percent of the new capital into the hands of the current Peerless shareholders. At the heart of the present system, then, is a mechanism for producing capital ownership that has been employed for centuries by wealthy individuals and businesses: *long-term credit.*

At the heart of USOP is this same mechanism, but with one key difference: now long-term credit will be extended to the non-capitalists.

Let's assume you are one of the non-capitalists. Here is how you would become a capitalist:

FINANCING NEW CAPITAL. Under the new federal legislation adopting USOP, Peerless will not be allowed to pay for its plants through internal funds or debt. Rather, it will be required to finance its capital growth by issuing $10 million worth of a special type of stock, to be known as USOP shares.

This stock will not be available to the 6 percent of Americans who already own a substantial number of shares. Instead, you and the rest of the 94 percent will be able to acquire a given number of USOP shares.

How do you pay for the USOP shares? You don't. A loan will be arranged to provide the money needed by Peerless for the stock — and eventually the stock will pay for itself, out of its own earnings.

THE LOAN. The USOP legislation will establish a government-guaranteed long-term loan program. In effect, *you* will be using the credit power of Peerless to acquire shares of its stock — just as Peerless now uses its credit power to acquire further capital ownership for its present shareholders.

A bank loan of $10 million will be arranged to provide Peerless with the entire cost of the new plant; Peerless will then issue $10 million worth of stock. But the loan will not be owed by you or by Peerless. It will be owed by the USOP fund. Until the loan has been repaid, the Peerless shares earmarked for your account will be held in escrow by the bank that made the $10 million loan.

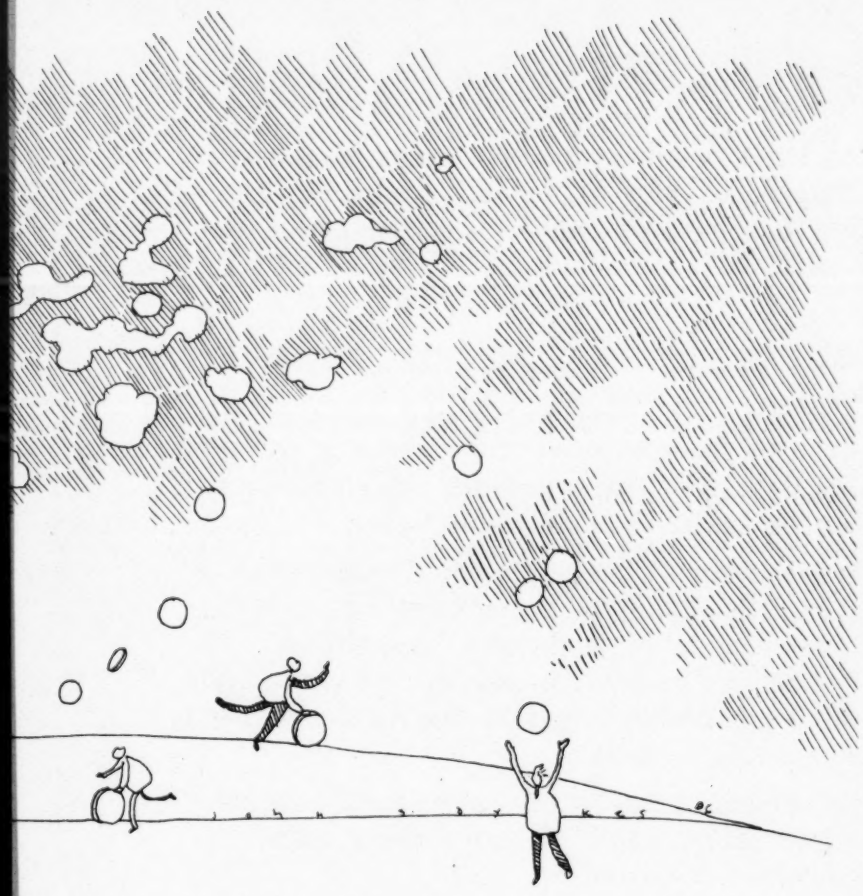
REPAYMENT. The USOP legislation requires Peerless and the rest of the 2,000 participating companies to pay out all their earnings as dividends (except those reserves actually needed to run the company). Thus, as Peerless begins to realize higher profits from the output of the pizza machines made in the new factory, these profits will be turned into higher dividends which are used to pay for the USOP shares issued to you.

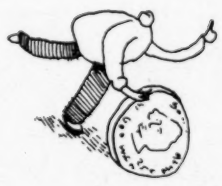
For a number of years, these dividends will be paid directly to the bank, until such time as it has recouped its $10 million loan plus interest. Then you become the outright owner of your USOP stock, and you will receive all future dividends directly.

Thus, the new USOP system ensures that Peerless's $10 million worth of new capital is owned by those who previously had no real access to capital ownership.

Two thousand companies

I have oversimplified USOP to give you a bird's-eye view from the standpoint of a single company, Peerless Pizza. Actually, it is designed as a





group plan, involving at the start America's 2,000 leading companies, such as General Motors, IBM, ATT, Xerox and Exxon. These are the companies that every year create most of America's $384 billion of new capital (which I rounded off to $300 billion above to represent the expenditures of these major companies).

To pay for this capital, each company would issue shares of its stock at market value. Each year these shares would be pooled in a sort of mutual fund, with each company contributing to the pool the number of shares needed to pay for its new capital expenditures. Shares would be parcelled out to those households eligible for the USOP program. Every USOP household would receive a piece of every participating company; there would be no big losers if one of the 2,000 companies did poorly.

Eventually, we should be able to include smaller companies in the USOP system. But we begin with our 2,000 largest successful companies because we are trying to plug our neediest people into the strongest sector of our economy.

We have the power

Apart from administrative functions, the government's primary role in the USOP program would be to (1) order our 2,000 leading companies to issue stock in payment for their new capital additions, and (2) guarantee the loans the banks would make to pay for USOP shares.

If you're wondering whether Congress has the power to order these companies to issue stock in payment for their new capital additions, the answer is yes. Back in 1937, the U.S. Supreme Court decided that Congress, by virtue of its power to provide for the general welfare, could require companies to make Social Security contributions for their employees. Thus, if Congress decided that a national policy of capital ownership would promote the general welfare of the American people, it would have the constitutional power to enact the necessary legislation.

There are also precedents for government guarantees of long-term credit. World War II veterans were able to secure government-guaranteed, low-interest home mortgages under the G.I. Bill of Rights. Certainly, if the government can guarantee loans for non-productive items like homes, it should be able to guarantee loans for capital outlays that are both productive and self-liquidating.

A cool $20,000

There would be a lot of tough decisions for Congress to make in establishing the priorities for access to USOP.

We might start by excluding all households whose current net worth equals $100,000 or more. Or we could establish a point system for eligibility. Points could be awarded for low wages, lack of savings or capital ownership, physical disability, and many other criteria.

Once eligibility has been determined, how much could USOP shareholders actually expect to receive in stock and income? According to reliable projections, American business will create at least $5 trillion worth of new capital over the next 20 years. If that figure is divided among the 50 million households (out of 86 million) that presently own little or no capital, each household would receive $100,000 worth of USOP shares. So at the current pretax return rate of 20 percent on invested capital, each household could expect to receive about $20,000 in dividends per year (after their USOP shares have paid for themselves).

Would a guaranteed yearly income of $20,000 impair the incentive to work? Perhaps. If so, we might build rewards into the system for those continuing to work. ►

In any event, we have to face the fact that we are entering the age of true automation, and there will not be work for everyone in the way we now think of work. If we develop a successful USOP, probably many people will choose to do volunteer work in research, the arts, community service, the improvement of the environment, or in occupations no one has dreamed of yet. James Robertson calls this "ownwork"; I call it "the work of humanity."

Homestead Act revisited

USOP is designed to provide income that eventually would perform the functions of Social Security, welfare, and other transfer payments. Since USOP shares would be issued to a lot of people who have no experience in ownership of capital, we would have to put restrictions on the right to borrow against it or sell it, so that the recipients could neither squander it nor be cheated out of it.

Here we can learn a lesson from the Homestead Act, under which the federal government gave out ownership of over 250 million acres of public land — only to see most of it bought up by commercial interests after the five-year residence requirement had been met.

Voting rights?

I believe that USOP shareholders should not be permitted to vote their shares. While this restriction would deny the holders of USOP shares some of the advantages of earned or inherited wealth, the immediate purpose of USOP is not to overthrow the capitalist system. The immediate purpose is to *heal our economically divided society* by using stock ownership to make income distribution more equitable.

There are several ways in which USOP shareholders could be given the *right of democratic participation* in the companies whose stock they received through USOP. We could establish a national USOP Board of Trustees, which would be elected by the USOP stockholders. This Board could be empowered to elect one or more members of the Board of Directors of the 2,000 companies.

Despite my feelings as stated above, you might want to consider whether the proposed national USOP Board of Trustees should be given the power to elect directors of the participating companies in proportion to the shares held by the USOP fund. Bear in mind that after 25 years or so, USOP would probably represent a majority of the shares of each of our 2,000 companies, assuming that shares of common stock were used.

Synthesis

USOP is consistent with America's greatest traditions, both liberal and conservative.

It is conservative in that it would reduce taxes, eventually eliminate transfer payments, reduce the budget deficit, and check the growth of government bureaucracy, while preserving private ownership and existing financial institutions, and supporting business.

It is liberal because it does more for the ordinary individual than all of the government welfare schemes ever dreamed up.

Getting there

We need to focus our best minds on the implementation of USOP, for it must carry the heaviest of all burdens: it sounds too good to be true.

To become a political issue and eventually be enacted into law, USOP needs to be analyzed and debated in universities, religious groups, the media, political circles, and finally, the legislature. (In Britain, that debate has already begun. On September 12, 1984, Dr. David Owen, leader of the Social Democratic Party of Great Britain, proposed to the party's annual convention that they adopt a plan similar to USOP.)

To stimulate this analysis and debate, I am sponsoring a *Stock Ownership Plan Essay Contest* through the Council on International and Public Affairs (777 U.N. Plaza, New York, NY 10017; 212/972-9877). Prizes are $5,000, $2,500 and $1,000; deadline is December 31, 1986. For an entry form and contest rules, send a stamped, self-addressed envelope to the Council.

Utopian?

Let no one dismiss USOP as utopian, for utopian ideas rest on changes in human nature, while USOP accepts human nature as it is and deals with the realities of the corporate finance system. If Congress decides that it wants to create an equitable distribution of income through universal stock ownership, it is free to do so. All that is needed is the political will. ■

A Scottish 'groceress' behind her counter in 1790: she sells among other things sugar-loaves, green tea, (Hyson), fabric, lemons, candles (?). Her gold earrings and jet necklace tell us that she was a woman of substance.
—The Wheels of Commerce

The Structures of Everyday Life
Volume 1
1981; 623 pp.

The Wheels of Commerce
Volume 2
1982; 670 pp.

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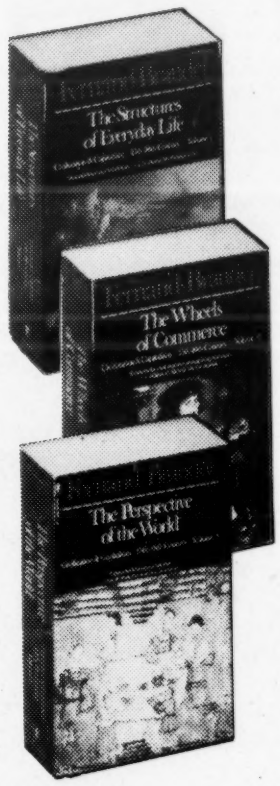

Civilization & Capitalism

***The Structures of Everyday Life**, the wonderfully titled first book in this three-volume masterpiece, inverts the usual perspective of history by ignoring famous names. Instead, it dwells on details that are so ordinary and so common that in this rudimentariness can be seen the outlines of a culture hatching.*

French historian Fernand Braudel, who has no peers, narrates the patterns of commercial civilization as it began to emerge simultaneously in China, Europe, and the New Worlds during the 15th to 18th centuries. He overturns conventional theories by cleverly paying attention to the "weight of numbers" in history: the price of eggs, the amount of wine a family consumed in a week, the number of times a copper pot would change hands during trade, and how many peasants it took to support a grain mill (there is an uncanny constant through history of one mill per 29 people).

He adds these measurements up to a sum of understanding and fascinating reading. Global in scale, epic in scope — it takes two additional volumes to complete this account of capitalism up to the establishment of a stock market during the Industrial Revolution. You won't find the breadth of a civilization fitted into a smaller bundle.

—Kevin Kelly

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The world of men with hoes was characterized — and this is the most striking fact about it — by a fairly marked homogeneity of goods, plants, animals, tools and customs. We can say that the house of the peasant with a hoe, wherever it may be, is almost invariably rectangular and has only one storey. He is able to make coarse pottery, uses a rudimentary hand loom for weaving, prepares and consumes fermented drinks (but not alcohol), and raises small domestic animals — goats, sheep, pigs, dogs, chickens and sometimes bees (but not cattle). He lives off the vegetable world round about him: bananas, breadfruit trees, oil palms, calabashes, taros, and yams.

—The Structures of Everyday Life

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The shopkeeper granted credit to his customers — and to the rich more readily than to the poor. The tailor gave credit; the baker gave credit (recorded on two pieces of wood which were marked simultaneously with chalk every day, one to be kept by the baker and the other by the customer); the tavern-keeper gave credit (the drinker chalked up his bill himself on the wall); and the butcher gave credit. 'I have known a family', writes Defoe, 'whose revenue has been some thousands a year, pay their butcher, and baker, and grocer, and cheesemonger, by a hundred pounds at a time, and be generally an hundred more in each of their debts'.

—The Wheels of Commerce

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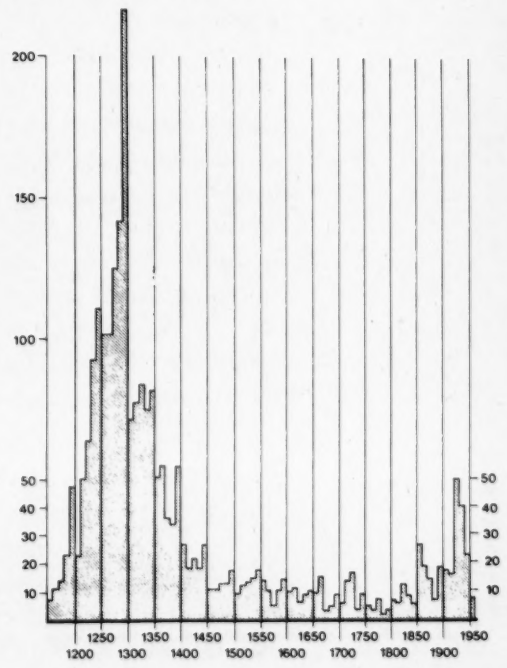
Fairs: ancient instruments forever being re-tuned
Fairs are ancient institutions: less so than markets (perhaps) but with roots going nevertheless far back into the past. In France, rightly or wrongly, historical research places their origins further back than Rome, in the distant age of the great Celtic pilgrimages.

Their age did not, at any rate, prevent them from being living institutions which adapted to circumstances. Their function was to interrupt the tight circle of everyday exchanges. A village in the Meuse in 1800 asked for a fair to be created so that it could obtain the hardware it lacked. Even the fairs held in so many modest little towns, and which seem only to be a meeting-point for the surrounding countryside and the town craftsmen, were in fact breaking out of the usual trade cycle. As for the big fairs, they could mobilize the economy of a huge region: sometimes the entire business community of western Europe would meet at them, to take advantage of the liberties and franchises they offered which wiped out for a brief moment the obstacles caused by the numerous taxes and tolls. Everything contributed then to make a fair an extraordinary gathering. Rulers who (like the king of France, the king of England and the emperor) had quickly taken control of these vital points of confluence, granted large numbers of derogations, franchises, guarantees and privileges. But we should note in passing that fairs were not all automatically exempted from duties, and none, not even the fair of Beaucaire, was governed by a system of complete free trade. For example, of the three 'royal' fairs of Saumur, each lasting three days, a text says that they were 'of little use, since none of them is duty-free'.

—The Wheels of Commerce



The foundation of towns in central Europe: the graph shows the exceptional burst of urbanization in the thirteenth century.
—The Perspective of the World

A JOINT U.S.-SOVIET MANNED MISSION TO MARS

by Bruce C. Murray

AS THE ROGERS commission delivers its report, the United States ponders the verdict on the *Challenger* disaster and wonders what lies ahead for American manned space flight.

But what NASA needs now, even more than new rocket boosters or any other machinery, are clear goals set by the president. Twenty-five years ago, President Kennedy committed the United States to placing an American on the Moon by 1970. That *Apollo* commitment enabled a golden age of American space exploration by humans and robots. Without a similarly clear and compelling destination for Americans in space, the annual congressional budget process and the brokering among special interests will lead to a diffused, diminished and mediocre outcome for all civilian space activities. American dreams and hopes, symbolized by space exploration, are more at risk now than ever before.

What should be the goal of manned space flight? Some space officials suggest that a large manned expedition to the Moon should be the next national goal in space. Yet, a second major lunar program seems hard to justify some 25 or 30 years after the first one. The only purpose for a return to the Moon would be to carry out some important lunar-based task, such as a search for extraterrestrial intelligence once the radio frequency environment of Earth becomes too crowded to hear faint signals that may be reaching us from other planetary systems. Such a lunar endeavor would make best sense for the United States as a cooperative international effort, to some extent paralleling the international efforts that have been made in Antarctica.

Inescapably, the key question for U.S. civilian space planning is, "Should we commit ourselves now to sending Americans to Mars?"

Planet Mars has always been alluring to humans. Close-up images of Mars reveal remarkable terrain and fascinating polar regions. It is natural that adventurous humans should travel there as soon as possible, just as the Arctic, the Antarctic and the Moon attracted intrepid human explorers in the past.

The other planets are far less attractive as potential destinations. Venus is hot enough to melt lead, with a crushing atmospheric pressure nearly 1,000 times that of Earth. Jupiter is surrounded by lethal radiation belts far more intense than those of Earth. Mercury's airless surface is similar to the Moon's but is bombarded by 10 times the amount of solar radiation. Mars, by comparison, is not only survivable but, in the long run, habitable. Oxygen and drinking water probably can be extracted from surface materials. Indeed, some even advocate eventual colonization of Mars, but such decisions may best be left to our descendants.

Organizing the Voyage

How should humans organize the first voyage to Mars? The experience of *Apollo* suggests that an all-out national competition to be first will prevail unless U.S. and Soviet leaders decide to collaborate. To be sure, the Soviets abandoned the Moon race, but only because they

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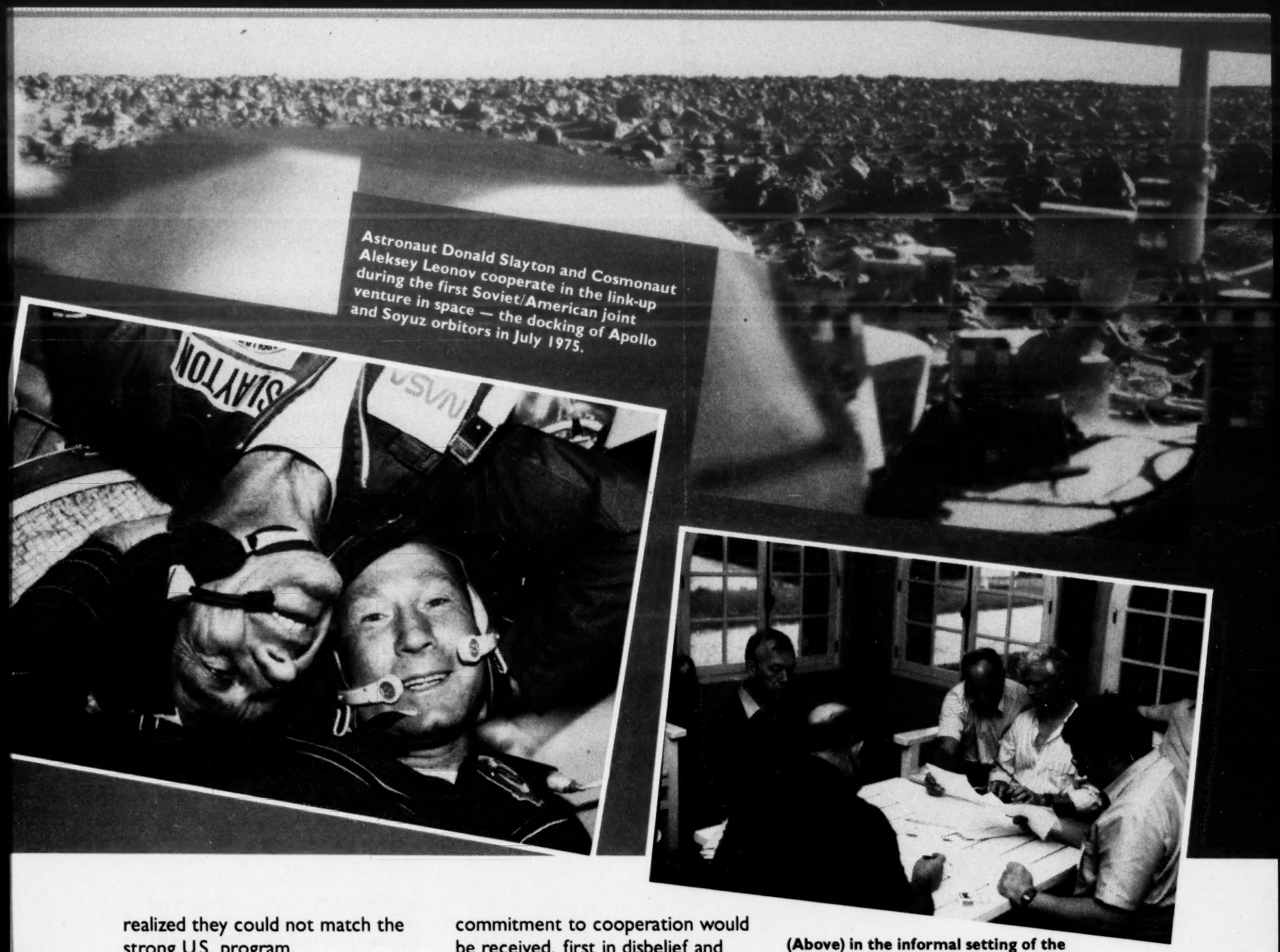
Bruce Murray's paper proposing a manned American/Russian journey to Mars first appeared in the journal Issues in Science and Technology *(Spring 1986). At astronaut Rusty Schweickart's suggestion, we here reprint a condensed version of the paper from the* Planetary Report *(July/August '86). Bruce Murray was director of the NASA/CalTech Jet Propulsion Laboratory from 1976 to 1982. He is currently Professor of Planetary Science at the California Institute of Technology.* —Kevin Kelly



Astronaut Donald Slayton and Cosmonaut Aleksey Leonov cooperate in the link-up during the first Soviet/American joint venture in space — the docking of Apollo and Soyuz orbitors in July 1975.

(Above) in the informal setting of the Association of Space Explorers (for those of any nationality who have flown in space), astronaut Rusty Schweickart meets with Russian cosmonauts. (Background) the plains of Mars at sunset, as seen by Viking II.

realized they could not match the strong U.S. program.

The U.S. choices are:

- to compete with the Soviets to reach Mars first,
- to collaborate with the Soviets in the first human exploration of Mars,
- to not go at all and risk second-rate status as a spacefaring nation in the next century.

The United States could surely win a race to Mars. It has a tremendous technological head start. The Soviets lack manned lunar experience and have no shuttle flights yet. But the reasons for the race to the Moon no longer apply. The United States is the world leader in space technology. It is highly respected — indeed, in some ways feared — because of it.

If the two superpowers were to agree to work together to send humans to Mars, both countries would benefit immediately through the reduction of domestic and international anxiety and through international support for the superpowers' creative leadership. Indeed, such a long-term and substantial commitment to cooperation would be received, first in disbelief and then in joy, by a world dispirited by decades of fear of a nuclear war. Moreover, a joint mission might appeal to the leaders of both superpowers because it would allow each nation to share and defer the huge expenditure involved. It would also help them manage the domestic groups and bureaucracies that have developed a vested interest in manned spaceflight.

It would be technically feasible for the United States to launch a unilateral manned Mars mission at least as early as 2003, 17 years from now. *Apollo* required only eight years from inception to launch. A plausible Mars mission would use two large interplanetary cruise spacecraft, each launched by giant multi-stage propulsion systems ferried up to space and assembled at a space station. A crew of four would travel in the first vehicle along with a Mars orbiter and a special ascent/descent vehicle.

The ascent/descent vehicle, analogous to the *Apollo* Lunar Module, would then carry three of them to the surface of Mars for a 30-day stay. There they'd investigate the planet, collect soil and rock samples and perhaps prepare the way for subsequent missions. The crew would return to Earth aboard the second interplanetary cruise vehicle, arriving home in 2006.

Technological Basis

The technological basis for manned space flight to Mars is much stronger now than comparable missions to the Moon were when the *Apollo* program was initiated in 1961. Projected costs reflect this difference. *Apollo* represented about a $75 billion expenditure, and the shuttle has cost so far about $17 billion (in 1984 dollars). The hypothetical manned Mars mission is estimated to cost $40 billion.

A joint U.S.-Soviet mission would resemble the mission described above. But it could proceed on a much more leisurely and affordable

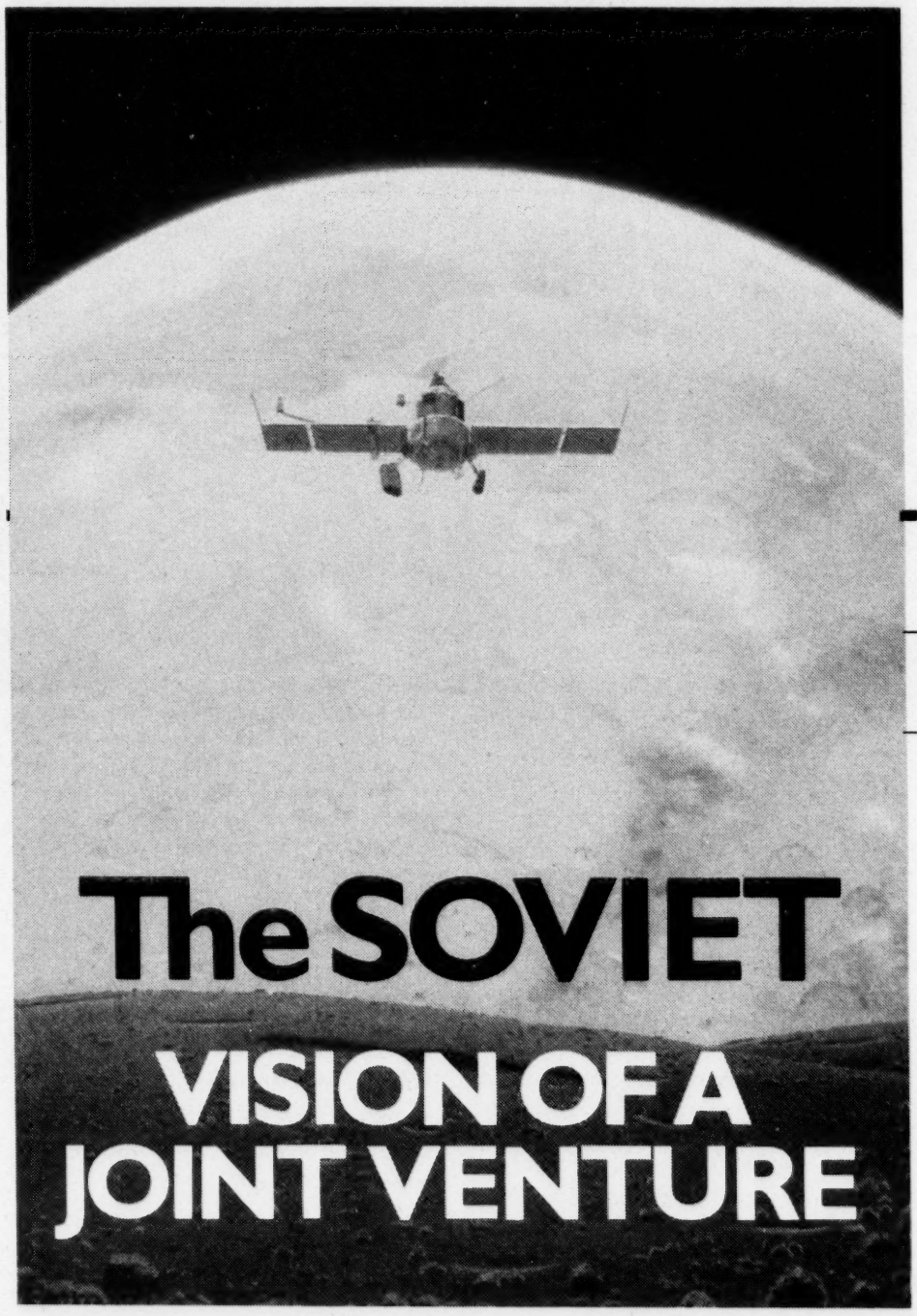
schedule, perhaps aimed at a landing during the 2015-20 time period. A return to the Moon for extended human-tended scientific experiments could be scheduled in the intervening years.

A collaborative mission would necessarily require substantial technological efforts of both countries. These should be as consistent as possible with the existing trends of the individual national space programs.

NASA's shuttle focus would make it logical for the United States to concentrate on the future task of ferrying structures to space, and there to assemble the launch vehicle. The Soviets, on the other hand, have evidenced considerable interest in long missions and have operated a nearly continuously manned facility in Earth orbit for many years. (Indeed, it is only as preparation for human travel to Mars that a logical rationale can be found for such long flights.) Thus, the large interplanetary cruise vehicle could be developed by the Soviets from their *Salyut* program, its capability being increased to include artificial gravity.

Having the two countries develop the most expensive and long lead-time items for the joint Mars flight within the context of their individual national programs would also minimize near-term information transfer problems. If the Mars orbiter and the ascent/descent unit, for example, were developed later, each side would be shielded to some extent from losses if the other country withdrew from the program. The Earth-orbital hardware being developed by each country still would be useful for other national purposes. If one country pulled out of the Mars mission, the other also might choose to develop the additional systems it needed over a longer period so it could go to Mars alone.

William Hartmann



In 1988, the Soviet Union plans to send an automated spacecraft to Mars to get a close-up view of the moon Phobos.

The SOVIET VISION OF A JOINT VENTURE

The following are excerpts of a six-page message from Nikolai Ryzhkov, Chairman of the Council of Ministers of the USSR, to United Nations Secretary General Javier Perez de Cuellar. The document in its entirety ("Nikolai Ryzhkov's Message," Press Release No. 96 dated June 13, 1986) is available from the Union of Soviet Socialist Republics Mission to the United Nations, 136 East 67th Street, New York, NY 10021.

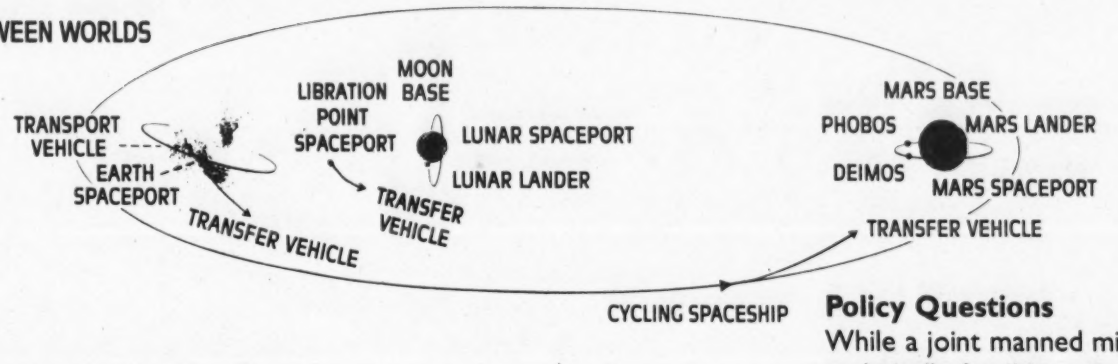
MOSCOW. June 12, TASS. — The Soviet Union submits for the consideration of the international community of states the following stage-by-stage program of joint practical actions in peaceful exploration of outer space. The three-stage program has the aim to lay, before the year 2000, solid material, political, legal, and organizational "Star Peace" foundations.

First Stage (Organizational). It is proposed to hold not later than 1990 an international conference or a special U.N. General Assembly session on questions of outer space. The forum would approve the program of actions for the next 10-15 years. It would institute a world space organization (WSO) and under its aegis specialized programs for the realization of concrete projects of cooperation.

Efforts should be concentrated on developing big projects using space technology for solution of tasks of socio-economic development, common to all countries, such as:

- Communication, navigation, rescue of people on Earth, in the atmosphere and in outer space;
- Remote probing of the Earth in the interests of agriculture, development of the natural resources of the land and the world ocean;
- The study and preservation of the biosphere of the Earth, establishment of a global weather forecasting service and notification of natural calamities;
- The use of new sources of energy, creation of new materials and technologies, including those for medicine and biology, establishment of a number of productions with the use of deep vacuum and weightlessness.

In addition to this, it is expedient to develop exploration of outer space and



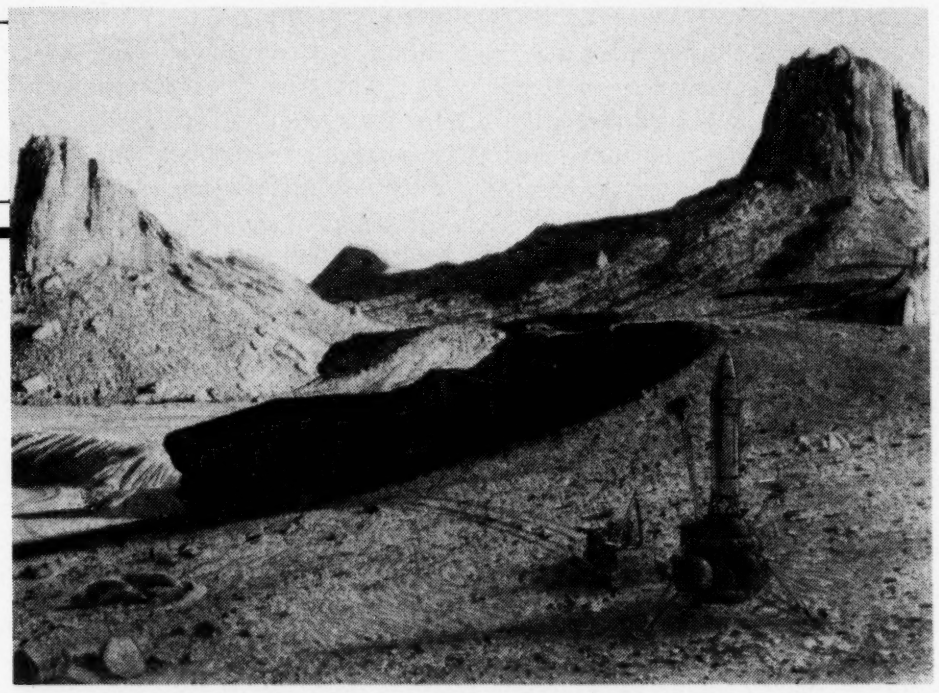
There would be opportunities for other countries to participate in the Mars mission through the development of specialized equipment, in return perhaps for the selection of one of their nationals as a Mars voyager.

Besides general planning for the future, U.S.-U.S.S.R. coordination on unmanned missions to Mars would be expected. The Soviet Union is preparing an important mission to land an unmanned probe in 1989 on the Mars moonlet, Phobos, and also to study Mars from orbit. The United States has scheduled a smaller mission dedicated to remote sensing of Mars from low polar orbit in 1991-1992. Both countries could agree to coordinate these two missions to maximize their scientific value.

Policy Questions

While a joint manned mission is technically feasible, many policy questions would have to be resolved. First, could the United States persuade the Soviets not to try to go to Mars on their own but to collaborate? I think so, because the United States has significant leverage due to its considerable technological lead. The United States must therefore make clear to them that it will not be second in going to Mars. It will either enter a valid collaborative program with them or

Artist Ron Miller's concept of the joint mission landing. The U.S. would provide a Mars rover, which would meander around collecting soil samples, and the Soviets would provide the return spacecraft.



celestial bodies by geophysical methods and by means of automatic interplanetary stations.

In our opinion, it would be realistic and fair that the major means for the implementation of such international projects should be earmarked by the space powers and other economically developed countries; developing states could participate in these projects on easy terms, and the least developed could receive scientific and technological results of the work as aid for the aims of their development.

Second Stage (Material Preparations). This stage would embrace the first half of the 1990s. It will deal with designing and creating space systems under agreed upon projects. On the threshold of the third millenium, the states would pool their space accomplishments to save the planet Earth.

The world space organization would start coordinating national space exploration plans, establishing the exchange of the results of space activities, rendering assistance to the countries, particularly those making the first space exploration steps, encouraging broad-scale, joint space projects.

Third Stage (Implementation). Launchings of appropriate spacecraft would be gradually implemented. Application would start operating on the self-repayment principle, yielding practical returns.

This would promote creating organizational and material infrastructure for a whole number of major projects on joint construction of spacecraft, including orbital stations and platforms for scientific and commercial undertakings, and interplanetary manned spaceships for practical exploration and use of the Moon in the first decades of the 21st century, which could also be used as a base for flights to other planets.

In other words, as a result of implementing the program proposed by the USSR, near-earth outer space would be used, by joint efforts, in the interests of all the peoples on the Earth, and this would create real prerequisites for turning the terrestrial civilization into an interplanetary one from the very beginning of the third millenium.

It is a logical and necessary step to set up a world space organization so as to coordinate efforts of states at a qualitatively new stage of cooperation in space exploration, including the implementation of major material projects.

The Soviet Union regards the WSO as a universal inter-state organization with its own charter in the form of an international treaty, associated with the U.N. through an agreement on cooperation. It would coordinate the implementation of specialized programs. The organization would be financed primarily by countries possessing large space potentials and by other economically developed states.

The WSO's efforts would be directed toward peaceful exploration of outer space and control over observance of agreements on preventing the spread of the arms race to it as they are concluded. To exercise such a control, it would initially use technical facilities granted by space powers and, later, its own facilities.

The WSO would promote a possibility for all the states to use in practice achievements of space science and technology for purposes and needs of their social and economic development and would help developing countries become direct participants in the great process of space exploration. ■

Pamela Lee

A multinational team of explorers constructs a shelter on Mars using prefabricated components, a first step toward a human outpost.

arrive there first. How can each side be sure the other is not misleading it? The technology required to go to Mars is of such vast scale on Earth that it is easily monitored. In addition, a system to take humans to the Moon and to Mars would have to be flight-tested on long Earth-orbital tests. There would be little danger that the Soviets could surprise the Americans, or vice versa.

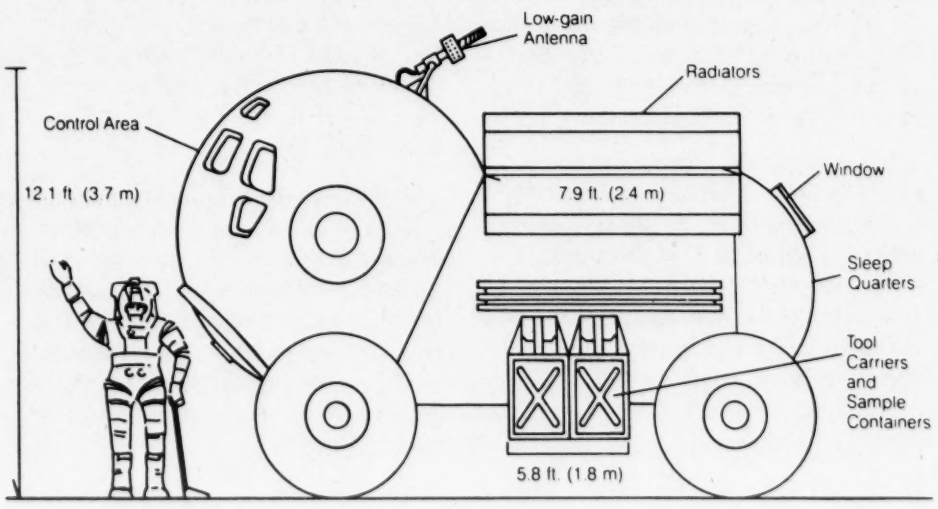
The task for a president committed to a collaborative Mars mission would be to convince the Soviets that the United States is serious about going to Mars — alone, if need be — without immediately locking the country into an expensive, all-out race. To accomplish this, the president need not set a specific date for a mission, nor ask for a major budget increase for manned spaceflight. Instead, the president should require that the space station be designed specifically to provide for the eventual launching of a manned vehicle to Mars. This is not a current requirement. In addition, the president should commit the United States to an automated rover mission on Mars in the mid-to-late 1990s. Such a mission would be essential to gain the information needed to design human landing and mobility systems. He could offer this mission as a collaborative one, making it clear that the United States will go alone if the offer is refused. If both countries were to collaborate, automated sample return might also be included.

These actions would convince the Soviets that, if they choose not to collaborate, the United States is going to Mars first. They would also set a much-needed long-term direction for the U.S. space program. Indeed, the unprecedented disarray in all U.S. space efforts triggered by the *Challenger* tragedy cannot now be overcome without explicit presidential direction. The president must determine not only how the United States is going to return to space, but also its destination.

Whether accepted or not, a genuine offer to the Soviets to collaborate on going to Mars would benefit the United States' relations with the rest of the world. For relatively small financial commitments in the near term, the president could set the United States on a track to Mars and maximize the possibility of Soviet collaboration while ensuring that the U.S. remains first in space.

The civilian space program can once again be used to achieve national goals. To join with the Soviets in going to Mars would be a bold new way to use space for international leadership. It would also constitute a particularly good use of NASA. The program would be scientifically and technologically challenging, it would be intrinsically open and international, and it would involve the highest level of adventure. Most of all, it is about peace, and hope and imagination — the stuff upon which NASA has flourished. A second Golden Age of civilian space can be achieved. Space in the service of priority human needs could become the symbol of an enlightened and vigorous 21st century for the United States and the world. ■

Mike Hinge and Brand Norman Griffin



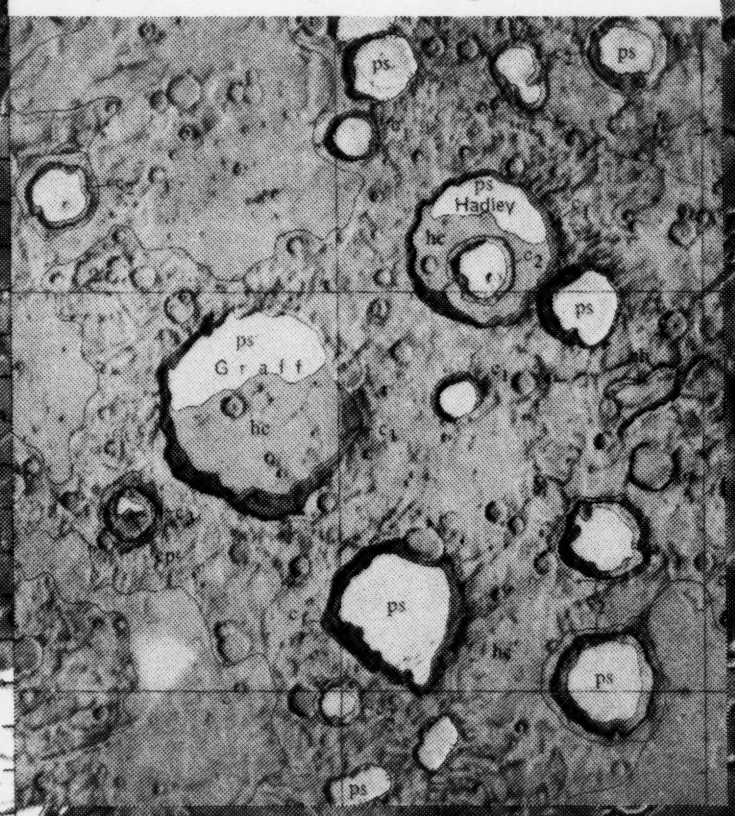
The Mars rover is an electric-powered vehicle designed to support a small crew during the long traverse of the Martian surface. Like a recreational vehicle, it provides both transportation and shelter.

Topographic Map of Mars
1:25,000,000 (I-961)
$3.10 postpaid
Other maps available; information **free** from:
Branch of Distribution
U.S. Geological Survey
Box 25286
Federal Center
Denver, CO 80225

Atlas of Mars

No symbols indicating campsites, trailheads, or unpaved roads . . . yet. This map (part of its south polar region is shown full-size on this page) is based on picture data gathered by Mariner 9; its precise detail shows everything from small craters to the 15-mile-high mountain Olympus Mons. Also available from the USGS are panoramic surface photographs taken by the Viking Landers 1 and 2, such as the one at the top of pages 22-23, and geological maps (inset below).

(Whoever chose the colors for the geological maps has an exquisite color sense.) —*Douglas Cruickshank*



Mars

"In these pages," Powers writes in the prologue, "I would like to show you how to fall in love with a planet." And he succeeds nicely. Step by step, from the Mars-I's space station departure through the beginnings of colonization, Powers draws on his comprehensive knowledge to describe, in exacting detail, what it will be like.

—Douglas Cruickshank

•

Arthur C. Clarke is supposed to have once remarked that space travel would bring forth new forms of erotica — and about time, too, he added. *Whether* is not really the question; *how* is more to the point. Leaving dusty notions of Victorian morality aside, both male and female astronauts will go to Mars, and during the voyage they will certainly find time to make love. Pertinent research will probably have been done aboard the space station long before the Mars ship leaves, since the station is expected to have mixed crews as well. As far as we know, sex in zero-g has not yet been tried; it is relatively impractical to experiment on Earth (true zero-g can be achieved in aircraft flying a parabolic course, but the effect is very short). About anything that might have occurred on a space flight, no one is talking.

Mars
(Our Future on the Red Planet)
Robert M. Powers
1986; 230 pp.
$17.95
($18.95 postpaid) from:
Houghton Mifflin Company
2 Park Street
Boston, MA 02108
or Whole Earth Access

Bodies in zero-g do not easily remain in contact. Any movement, any physical action, is followed immediately by an opposite and equally strong reaction. This is called Newton's Third Law, the principle on which rockets fly. It means that any physical movement between two people would generally result in both of them flying around the room. One solution is to have a separate cubicle aboard ship with a variety of hand- and footholds, the use of which would require considerable ability. Another possibility would be to design a form of oversized girdle for two, an elastic (but not too elastic) web.

Pioneering the Space Frontier

A readable summary of one vision of the human climb into space. The National Commission on Space's mandate was to formulate a bold new agenda for the U.S. in space. They propose that, within 50 years, the United States establish a continuous presence on the Moon and Mars and utilize the resources of the Moon, Mars, Phobos, and asteroids in pioneering the inner solar system. This is an official commitment to have human space settlements within two generations.

Although some chapters deal with science and technology, the commission's report is first and foremost a political document, colored with Reagan-thought: it views the solar system as an extension of the American frontier. The commission describes the United States leading mankind into space — hoping that no one has noticed that the Soviet Union's orbital habitation program is much farther along, and that internationalization is already recognized among space supporters as a prerequisite for most ambitious space activities.

However, specific blueprints for pioneering are outlined. They include a network of human outposts and bases in the inner solar system; the establishment of self-sustaining ecosystems independent of Earth; new Earth-to-orbit and interplanetary vehicles; more unmanned scientific probes; more frequent flight opportunies for researchers; and comprehensive monitoring of the Earth and Sun. But no mention of the solar power satellite project, interstellar probes, or the Strategic Defense Initiative — or, for that matter, the impact of expanding military space activities on civilian access to space.

The scale of the plan is awesome — yet it seems basically plausible. I was put off by the emphasis on nationalistic and economic motives, although these shortcomings may ultimately be beneficial — if they spur others to devise competing plans that are even more appealing.

—Robert Horvitz

•

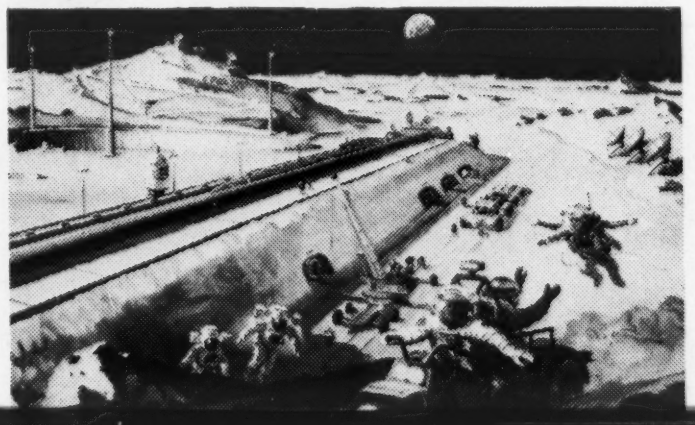
Twelve Technological Milestones in Space
The program we propose sets the stage for exciting achievements in pioneering the space frontier. A dozen challenging technological milestones would mark our progress:

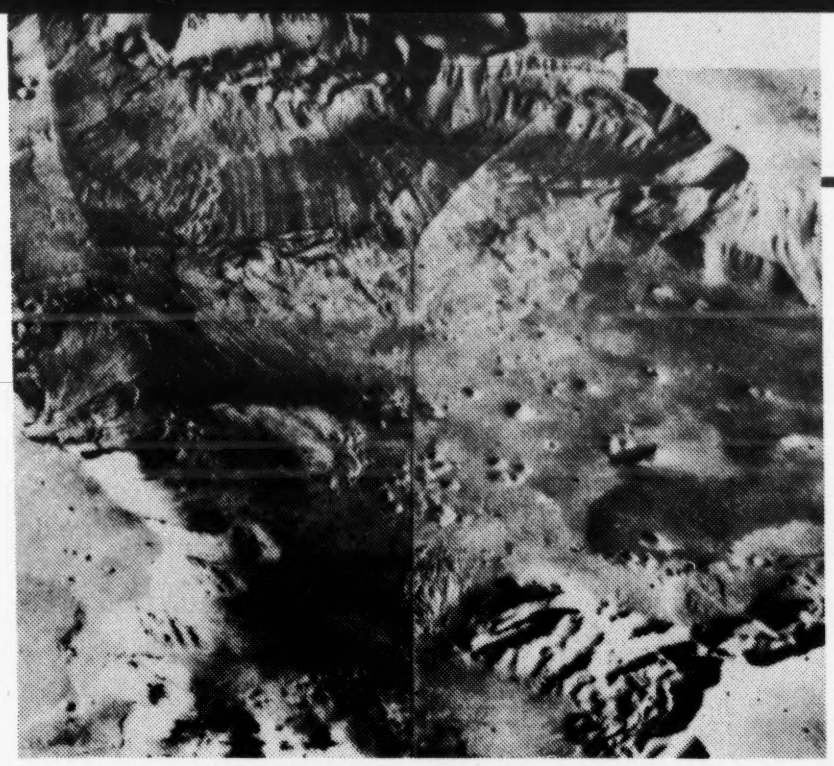
• Initial operation of a permanent Space Station;

Pioneering the Space Frontier
(Report of the National Commission on Space)
1986; 211 pp.
$14.95
($16.45 postpaid) from:
Bantam Books
414 East Golf Road
Des Plaines, IL 60016
or Whole Earth Access

• Initial operation of dramatically lower cost transport vehicles to and from Earth orbit for cargo and passengers;
• Addition of modular transfer vehicles capable of moving cargoes and people from low Earth orbit to any destination in the inner Solar System;
• A spaceport in low Earth orbit;
• Operation of an initial lunar outpost and pilot production of rocket propellant;
• Initial operation of a nuclear electric vehicle for high-energy missions to the outer planets;
• First shipment of shielding mass from the Moon;
• Deployment of a Spaceport in lunar orbit to support expanding human operations on the Moon;
• Initial operation of an Earth-Mars transportation system for robotic precursor missions to Mars;
• First flight of a cycling spaceship to open continuing passenger transport between Earth orbit and Mars orbit;
• Human exploration and prospecting from astronaut outposts on Phobos, Deimos, and Mars; and
• Start-up of the first Martian resource development base to provide oxygen, water, food, construction materials, and rocket propellants.

Lunar activities in the 21st century could include astronomy, both optical and radio wave, and the use of lunar material to manufacture products in space. In the background, a mass-driver is propelling baseball-size pieces of lunar material into space.

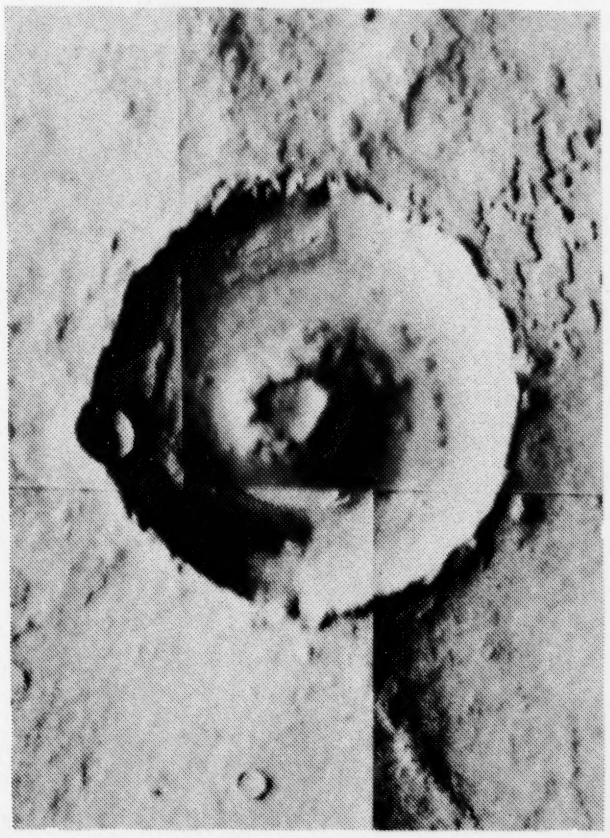




◄ Oblique Viking orbiter view across Gangis Chasma in the canyonlands of Mars. The landslide on the far wall extends as far as 50 km from the canyon wall and is one of several landslides that have enlarged the canyon. Visible in the lower right is a dark deposit which consists of sand dunes, demonstrating aeolian activity.

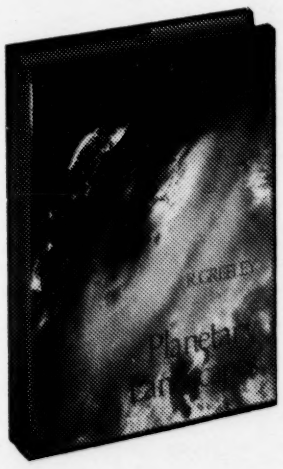
Planetary Landscapes

Access to planets! Pictures and text show and explain radically different geological processes in a way that makes other planetary bodies more familiar and our own more fantastic. This is exciting stuff. It's a lot like anthropological archaeology, where a mix of careful observation and creative detective work is needed. What's presented is both the what (discovered) and the how (it was discovered). Greeley is contagiously fascinated with his subject. Everything is explained with an attention to a type of detail necessary for scientists but often neglected for lay people — such as an explanation of "things that go wrong with pictures sent from space." The mountains of Mars to the moons of Jupiter — come alive. —David Finacom



► Impact crater 50 km in diameter in the Noachis region. The central peak in this crater has a pronounced pit which may have formed by collapse during the final stages of crater formation. The abundance of central pits on Mars suggests that they may be related to volatiles, such as subsurface water or ice contained at the time the impact occurred.

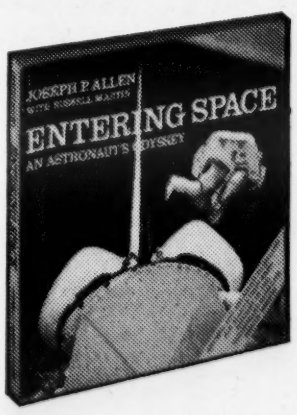
Planetary Landscapes
Ronald Greeley
1985; 265 pp.
$44.95
($46.95 postpaid) from:
Allen & Unwin, Inc.
8 Winchester Place
Winchester, MA 01890
or Whole Earth Access

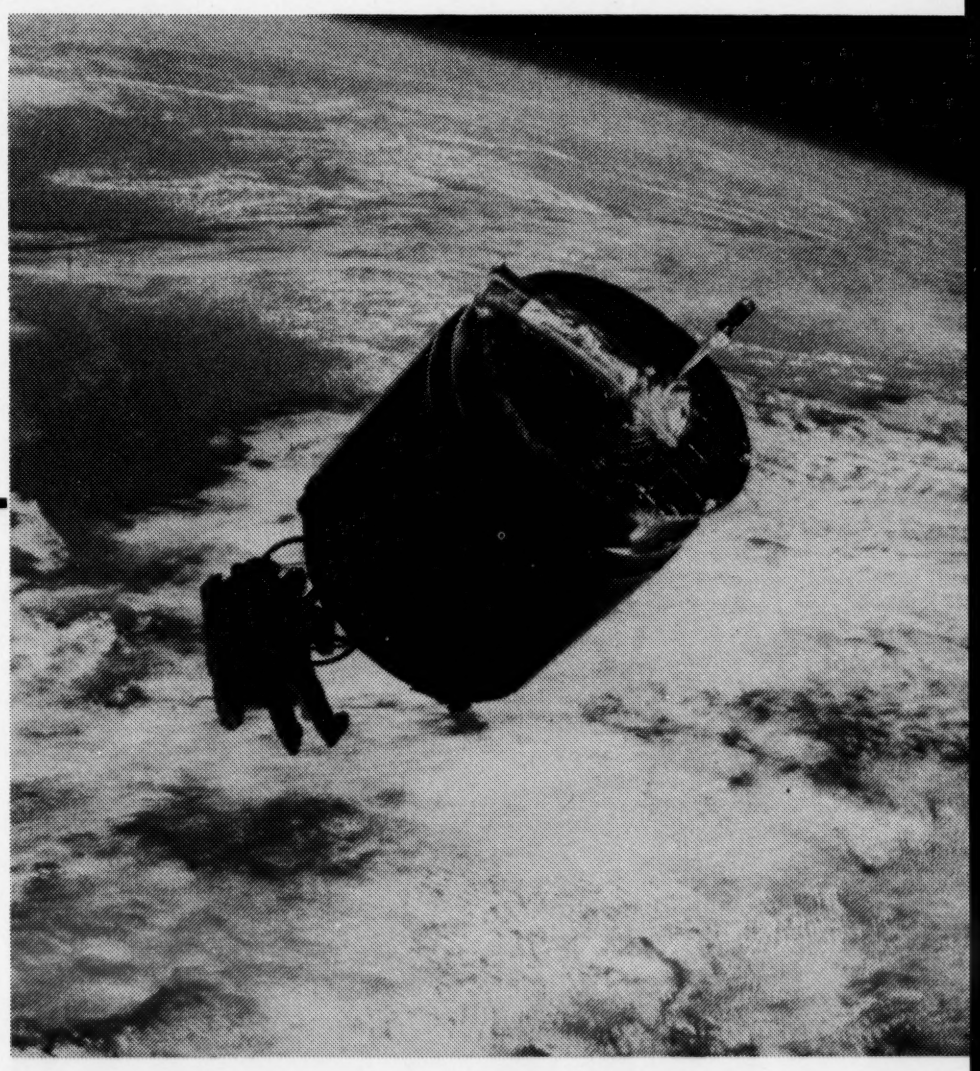


Entering Space

This book is quite simply the best and most attractive introduction to manned space exploration that I have seen. Written by one of the Space Shuttle astronauts (before the Challenger tragedy), it is an upbeat, behind-the-scenes look at the U. S. space program. Over 215 dramatic color illustrations, many unique to the book, provide a visual feast for the space enthusiast. —Andrew Fraknoi

Entering Space
Joseph P. Allen
with Russell Martin
1985; 240 pp.
$16.95
($18.10 postpaid) from:
Workman Publishing Co.
Stop Order Dept.
1 West 39th Street
New York, NY 10018
or Whole Earth Access





▲ While I idly watched a trail of ash and smoke spread out over the Pacific from the cone of a Nicaraguan volcano, Dale began to secure the A-frame.

AmerRuss

by Bob Fuller

illustrations by Cristine Mortensen

"This land is your land,
This land is my land,
This land was made
For you and me."
—Woody Guthrie

At first glance, Bob Fuller's idea of melding America and Russia seems preposterous. But just as he did, I have found that the concept is a hard one to dismiss. It proves to be so useful in approaching the topic of Russia, particularly in view of the groundswell change in outlook now taking place there, that I find myself coming back to Fuller's perceptions each time I begin a discussion about what the Russians should be to us, and we to them.

The concept of AmerRuss is a work in progress. At this point, its incompleteness and vagueness are its strengths. Bob Fuller has kept a chronicle of the birth of this idea and the musings it has called out of him. Write him, via us, to add your bit to this story.

*The ancient Chinese peacemaker named Mo Tsu journeyed between warring states to prepare a state of mind on each side so that peace, when it came, would have a chance of staying. In the past, as reported here (*WER *#46,* CQ *#37, 35, 25), Bob Fuller has gone "Mo Tsuing" in Poland, Kenya, China, Russia, and the Mideast, as a citizen ambassador preparing un-peaceful places to be ready for peace to happen. AmerRuss is a deceptively powerful kung-fu move that Mo Tsu would have understood.*
—Kevin Kelly

London, December 1984

[redacted]

OCCASIONALLY one has an idea that is so incongruous with one's usual thinking as to be disquieting. Such an idea came to me on the longest night of this long-prophesied dark year — the winter solstice of 1984.[1] I happened to catch myself playing with this dark notion just before it vanished (or rather, was banished!) from consciousness. What happened was that I found myself imagining the United States and the Soviet Union merged to form a single nation.

Initially the image was a geographical one: a wide green band encircled the northern hemisphere, from the Baltic eastward across the Urals and Siberia to the Pacific, over the Cascades and Rockies, across the Great Plains to the Atlantic. I have seen this vast beautiful land, frame by frame, through the windows of trains,[2] but never before had I seen it all of a piece, without boundaries. I recalled a spot of desolate beauty where I once spent several days, the one place where the U.S. and the U.S.S.R. already touch — the Diomede Islands in the Bering Strait, geological remnants of the land bridge that once joined Asia and North America. They began as one land; might they not again be joined?

I think the source of this idea was the realization that mankind's ancient imperial urge to bring things under its sovereignty has collided with the modern-day barrier of nuclear deterrence. In this unprecedented situation, something has to give. The fear that deterrence will fail and global destruction will ensue haunts us all. There is a foreboding that the prospects of negotiating our way out of this impasse intact are not bright. Nevertheless we keep searching for a way to avoid a nuclear superpower confrontation. Various routes to a voluntary negotiated attenuation of national sovereignty are imagined; multinational organizations have long

been dreamed of, many have been designed, and some have even been built. But all such organizations have been undermined by their autonomous member states, each of which retains its capability of unilateral action. Our world is still built of sovereign subsystems, any one, or any group, of which may attempt to subordinate another. As such, it is a system in unstable equilibrium. Each nation must remain utterly vigilant lest the others gain some momentary advantage that might then be parlayed into domination. A nation that disarms unilaterally or even lowers its defenses puts its existence on the line. In such a precarious system of nation states, periodic arms races are simply a logical consequence of the will to survive. Has there ever been such race that did not end in war?

Yet, the age-old fantasy runs, what if somehow a *single* sovereignty could be established on earth? Could the world's different societies then develop in considerable harmony, side by side in federation, freed from the fear and the costs of war? In the usual analysis it appears that the existence of two superpowers would permanently prevent this. Each blocks the other from exclusive domination, from establishing that single sovereignty — One World — with itself in charge. Each neutralizes the other. The result: stalemate. As is often the case, however, the impasse suggests a way through itself. With Russia and America merged into one nation — let's call it AmerRuss — so much stronger any other or an alliance of others, a way through to the elimination of all national sovereignties can be envisioned.[3] It would not be easy, but it might well be managed without destroying the world, and possibly without the loss of many lives.

Once the invincibility and dominance of AmerRuss were established, the other nations might be persuaded (some might have to be coerced) to disarm and to join a representative world government. Many nations would probably submit to the new order willingly, especially if this brought immediate and meaningful participation in global government. Thus, one scenario has France and the U.K., or perhaps all the NATO and Warsaw pact nations, joining in from the start. But these are variations on the primary dynamic, which is the formation of AmerRuss via the unification of America and the Soviet Union, and it is on this that I want to focus.

The first order of business for AmerRuss would be the establishment of a strategic military monopoly. Presumably, all other matters could be left alone during this critical period. That is, to free the world from the scourge of war forever, national sovereignty, which carries with it the option of making war unilaterally, need only be infringed upon in the military sphere. Both America (in Viet Nam) and Russia (in Afghanistan) have learned that establishing control over societies that mount a guerrilla resistance to interference in their affairs is extremely difficult, if not impossible.[4] So the new leaders of AmerRuss would have ample reason to limit their military role to that of policing the strategic relations among nations. Whatever form the new global order took initially, evolution towards political modernization (i.e., some synthesis of liberalization and collective social responsibility) might occur over time, especially in a context devoid of external military threat. Furthermore, in the absence of the superpower arms race, the prospects for reducing material human suffering on a global scale would be considerably brightened.

Serious questions arise: Could individual freedom be preserved in such a merger? Would pluralism of world culture be lost under "AmerRussian" hegemony? And what about the Chinese? Would war with them ensue? If China were not either subdued, persuaded to join as a founding partner or to accept some kind of federal status (but one lacking in aggressive potential), we would be right back in the superpower soup, this time with AmerRuss vs. China.

More issues come to mind: What about other nuclear powers? (France and Britain have been mentioned. What about Israel? And future members of the nuclear club whose reckless actions might be one of the direct causes of the formation of AmerRuss in the first place.) Would there be an interim role for a "star wars" defense, during the period of consolidating exclusive military sovereignty? Although strategic defense may be ineffective *between* the superpowers, it might play a critical role in shielding AmerRuss from other nations such as China and Israel, if they insisted on maintaining the capacity to strike the "superfort" and other nations. It is not implaus-

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1. George Orwell's book, *1984.*

2. Accounts of two Trans-Siberian train trips — one west to east, from Paris to Tokyo, and one east to west, from Peking to Budapest, can be found, respectively, in "Our Enemies, Our Selves" (*CoEvolution Quarterly* #25, Spring 1980), and in "MoTzuing: Notes on Discussions Regarding Nuclear Winter and Space Bridges with Chinese and Soviet Scientists" (*Whole Earth Review* #46, May 1985).

3. The ancient name for Russia was "Russ," pronounced "Roos." Some may feel it is chauvinistic to put "Amer" first, but the name "Russica" captures nothing of "America," whereas "AmerRuss" includes the whole of the old name for Russia. Also, the word "amer" means "bitter" in French, adding a note of warning. Would "AmorRuss" better promote the brotherly love one would wish for?

4. In the Soviet Union, the invasion of Afghanistan was defended to me on the grounds that America was poised to attack, and the Soviets got there just hours before our troops were to land. My reply — "Thank God you got there first" — brought the most crestfallen look I have ever seen on a patriot's face. Despite the geopolitical differences, there are many signs that the Russians are learning our Vietnam lesson about the limitations of power. Of course, under AmerRuss there'd be no competing superpower to offer support to guerrillas.

ible that the combined offensive and defensive forces of an AmerRuss (circa 1995) could in fact virtually eliminate the second-strike capabilities of the other nuclear powers.

What would relationships among countries be like: would there be a federation of States and/or Soviets; or would the situation resemble more the European Economic Community, but stripped of war-making potential? Would the world abandon passports and visas, and move to a single currency? Each of these questions calls for thorough consideration and detailed analysis. But these lie beyond the scope and intention of this essay. My purpose here is to sketch the main lines of a possible path — one consistent with the realities of military power — to the establishment of a single sovereignty on earth, the utopian vision of One World, and then look at the consequences for freedom and for the human spirit.

Could the leaders — let alone the people — of the United States and the Soviet Union ever be brought to entertain such a plan? In grappling with this question, one's thoughts turn conspiratorial. Should everything be arranged in secret and then foisted on an unsuspecting world? Traumatic, certainly, but infinitely less so than nuclear war. Perhaps the militaries of these two countries have already devised plans to do just this! It might require bypassing civilian politicians, but this could seem justified to military leaders who believe that they alone fully understood the present dangers to the human race.

Even supposing that the idea of merger were broached and that people on both sides began to develop it, how would power be shared among the representatives of the two nations? What would the new system of governance look like? And while the two militaries were being reorganized into a unified command, what kind of transitional safeguards could ensure that apparent acceptance of unification was not a ruse covering the attempt by one or both countries to consolidate enough power — while the other's guard was lowered — to win sole, exclusive supremacy?

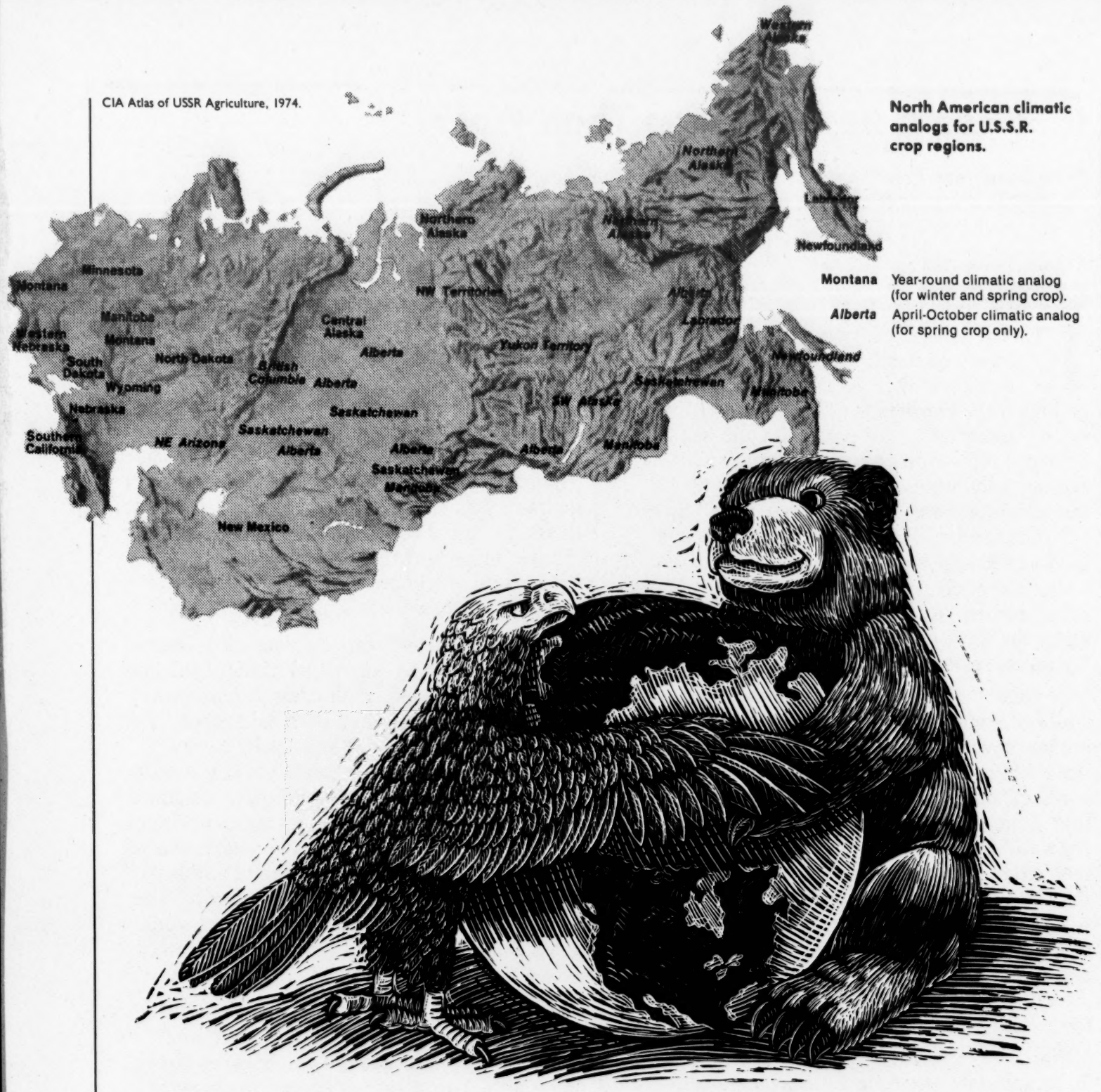
Beyond the crucial military questions are other issues such as the squaring of Western human rights, which are guaranteed largely in process terms, with the collective rights that are central to Soviet society, and guaranteed largely in substance terms.[5] Could perhaps the new Chinese/Hong Kong formula — "one nation, two systems" — be adapted so as to work on a multicontinental scale? That there might be great advantages for both peoples would *not* be a sufficiently compelling reason to proceed with the merger. The only inducement I can see at this point would be as a means to save humanity from the nuclear pickle it has gotten itself into.

Not surprisingly, the supposed potential advantage to the peoples of the world — being freed forever from the scourge of war — will be of little interest to their leaderships, whose attention will be riveted on questions of power. Actually, it is precisely *because* of the will to power that such an incredible rearrangement might actually be possible. Those who have reached the pinnacle of national power, and who are responsible for nuclear arsenals, may be readier than we might imagine to transcend national loyalties and join together — both to save, *and to rule,* the planet. Every attempt made by one superpower to extend its reach or to increase its power is made with a look over its shoulder towards the other, which stands poised to frustrate such efforts. Might not the two someday begin to imagine exchanging impotence for *omnipotence?* For realizing *together* the perennial dream of world empire? Better we together than neither, they might conclude. Better to stand together against nuclear proliferation and anarchy and dozens of local arms races. Sooner or later one of them will get out of hand and perhaps escalate into global war. The first time it should occur that an American president and a Soviet leader have both held office for a time, come to know each other, and recognize their mutual responsibility and opportunity, might not this possibility be of some interest to them? And then what would happen? Could they do anything if they tried?

I wonder what to do with this dark notion. Perhaps it's best to make it public, throw some light on it. At least the suggestion (or the threat) of AmerRuss should draw attention to the basic underlying issue, that of national sovereignty. Perhaps political scientists should actually begin hypothetical planning for such a merger. The mere exercise of creating a plan might reveal that a fight to the finish is unnecessary. Or, it might someday facilitate a joint policing action to restore order should terrorist, or other martial, activities reach a level that threatens global equilibrium. Or even help make possible a shotgun wedding, suddenly required to avert impending catastrophe.

The fact of the matter is, America and Russia are already wed; there is a de facto marriage between them. But it is a bad marriage. No marriage was ever improved by discussions of which weapons the partners would be permitted to use in the event of a fight. What is called for to improve a relationship is discussion of the rights and responsibilitites of the partners, and of even more fundamental matters — such as love, learning, and living life to the full — that lie at the heart of a good marriage. The result in the political case would be the forging of a "marriage contract" — that is, a constitution for AmerRuss that recon-

5. The distinction between American "process" rights (such as freedom of speech, assembly, and worship) and Soviet "substance" rights (such as the right to education, medical care, and housing) is discussed in "Our Enemies, Our Selves," op. cit.



CIA Atlas of USSR Agriculture, 1974.

North American climatic analogs for U.S.S.R. crop regions.

Montana Year-round climatic analog (for winter and spring crop).

Alberta April-October climatic analog (for spring crop only).

ciles the Soviet and American constitutions into a single consistent document wherewith to govern a single new sovereignty, and perhaps ultimately to provide a framework for real world government.

The only circumstances under which the creation of AmerRuss can plausibly be imagined today are admittedly crisis conditions of world-threatening proportions. Nevertheless, consideration of such a scenario, and variations upon it, may awaken the world to the need to confront the issue of national sovereignty and its corollary: the potentially lethal consequences of unilateral actions taken by such sovereign nations. Of course, even the imagining of AmerRuss will alarm people and governments everywhere. But alarmed is exactly what they should be: we face the greatest crisis of all time and we have as yet found no effective response. Can we expect to survive if we fail to recognize and address the crux of the matter? A proposal to create a single ruling entity by merging the United States and the Soviet Union, and then with this all-powerful body to disarm and police the world and establish world government, at least puts the pivotal issue of sovereignty squarely on the agenda. It forces examination of the taboo trade-off: sovereignty for survival. Gentler, more utopian scenarios can be imagined, but perhaps would not be as effective at provoking the analysis and discussion so urgently needed.

World history is not a tea party. An especially rough passage lies ahead, as we confront the necessity of restructuring the system of national sovereignties in a highly interdependent, nuclear world. It is in this spirit that I present AmerRuss — as a challenge to devise a plan for the extraordinary difficulties we are facing, a plan that holds a realistic promise of less overall suffering. I do so recognizing that it is entirely possible that the time-honoured British way — that of pragmatically muddling through — is the wisest strategy of all. Grandiose, ideological, apocalyptic schemes for reordering the world, schemes like AmerRuss, run counter to such healthy pragmatism. But even if we reject them, it can only be safer if we choose to muddle through, remaining conscious of the grand plans that lie to the left and right of us as we consciously chart a middle way. ►

Is There A Better Game Than War?

"I've been freed from the self that pretends to be someone, and in becoming no-one, I begin to live. It is worthwhile dying, to find out what life is."
—T. S. Eliot

Berkeley, June 1985

EVER SINCE the notion of AmerRuss presented itself, I have felt profoundly disturbed by it. At the root of my misgivings is the knowledge of the potential for evil in any concentration of power like the one imagined. Lord Acton encapsulated this in his famous admonition: "Power tends to corrupt, but absolute power corrupts absolutely." So the key question has become: How can we accommodate the long-standing imperial thrust towards a single sovereignty or, to put it in positive terms, arrive at One World, without doing ourselves in along the way? Can we get out of the nuclear frying pan without landing in a totalitarian fire?

Like some "miracle" drugs, the AmerRuss "cure" could be worse than the disease. I believe in accordance with Western political theory and practice that any concentration of political power that is not offset by another is a menace. Never mind that AmerRussian hegemony might be liberalized from within. The gnawing question keeps returning: is there some way that military power, after first being consolidated, could then be "topped" — that is, rendered impotent to do anything other than stand as a vestigial reminder of our past? We may, after all, not be able to contain, control, and finally transcend the use of military force until it has all been gathered into one "place" and itself become "targetable."

To recapitulate, the AmerRuss scenario runs something like this:

America and Russia glare at each other for about fifty years — say, 1945 to 1995. Terrorism increases, hotspots multiply, and nuclear weapons proliferate. "Little" nuclear wars erupt, or threaten to, putting the U.S. and the U.S.S.R. under great pressure to take sides, even to attack each other preemptively. Instead, to everyone's amazement they strike a deal, unite, and use their enormous military advantage to cajole and/or coerce the other nations into nuclear (and then general) disarmament. The two junior societies, adolescents on the world stage, have together conquered the world. The older, wiser, less bellicose civilizations of Europe, India, and China — indeed, all the world's peoples — seem to be at the mercy of this impetuous monster AmerRuss.

Then what happens? With what do we attack the now targetable concentration of military force that is AmerRuss? Obviously, not with military force. The answer is likely to be something as unanticipated as the formation of AmerRuss itself. I've thought of it as something that tops AmerRuss, and searched for it in several realms: psychological, political, and spiritual. I believe that an effective defense against potential AmerRussian tyranny would call forth evolutionary changes in each of these areas, changes that together might conceivably provide a counterweight to the heavy hand of the unitary state.

In the psychological realm, perhaps it is less a matter of topping AmerRuss, than of the bottom falling out: that is, all conviction in it, as something having special, paternal authority, evaporating in the minds and spirits of new citizens. Imagine people simply walking across what had been international borders; imagine a kind of getting on with life that starts with looking out the front door and doing what needs to be done, that is devoid of looking to authority figures for permission and for leadership.[6] The attitude toward the "world police force" would be very like the matter-of-fact one an ordinary citizen has for his local police.

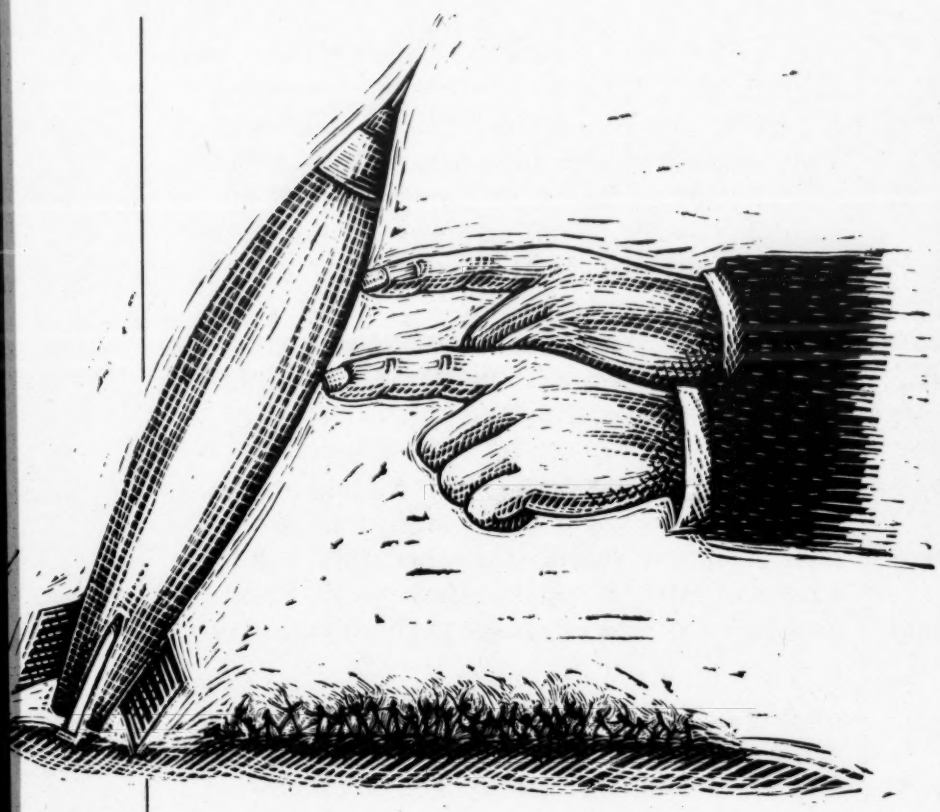
The step beyond AmerRuss, as I see it, must also involve implementing political and economic policies that will bridge the gap between North and South. The release of energy, intelligence and resources that would result from the attenuation of nationalism, and from an ending of the arms race, could be redirected towards environmentally sound economic development of the entire world — North and South — and also the exploration of the oceans and space, making these practical possibilities during, say, the first part of the 21st century.[7] It is interesting that just as the East-West arms race leads to the notion of the collapse of sovereignty, so too the North-South, or wealth-poverty, issue leads to the notion of "unionization" of the developing nations of the South, and the concomitant infringement upon their sovereignties.[8] Whether we focus on the East-West or the North-South axis, the clues point to sovereignty as the culprit and an im-

6. In psychological terminology this amounts to an end to identification with one's nationality, and of transference onto one's nation and its leaders.

Coupled with the movement of all strategic military power to one place — and then its gradual "withering away" (shades of Marx?) because there is nothing for it to oppose itself to — there is the empowerment of individuals and regional government resulting from a release of energy previously bound up in patterns of nationalistic transference.

7. The "ten directions" — eight points of the compass, plus "up" and down" — cited in Buddhist literature.

8. For development of this theme see "We Are All Afrikaners" in *Annals of Earth,* Vol. IV, No. 2, 1986; 10 Shanks Pond Road, Falmouth, MA 02540.



The foreshadow of AmerRuss is where Russia and America meet. Bob Fuller took this photo standing on the Bering Strait island of Little Diomede (USA), looking over the frozen sea to Big Diomede (USSR).

pediment to the next stage of human development.

The establishment of a single, unitary, military sovereignty on earth, and the obsolescence and gradual dismantling of strategic arsenals that sit idle and unopposed, is the realization of the old imperial dream and the prerequisite for the world federalist dream. This dream will have to be met, offset, and completed by a powerful thrust toward human fulfillment and exploration that contextualizes the military monopoly, making it incidental. In time the consolidation of military power would be seen as an overdue transitional step towards the realization of our full humanity.

Lying below the economic and political reasons for war, of which we are conscious, and even deeper than the subconscious need to focus our fears and hatreds, there is another, darker wellspring of this recurring human activity. Strange as it may seem, men and women have *needed* war. We have used war in order to know, to define, and periodically, to redefine, ourselves. This does not mean that war has always, or even usually, been resorted to lightly. On contrary, it is generally as a last resort that people visit upon others and themselves the horrors of war. Other ways are usually found to liquify a petrified situation enough to permit some redefinition and to sidestep war. However, there are occasions when no known solvent seems to dissolve the deadlock, and the level of stress and tension rises to the point at which people will do anything to change themselves. If indeed it is generally as a last resort that people go to war, then it must be in order to get that which they can obtain in no other way, and for which they are willing to pay the highest price. It's like the need we have for vitamin C. We only need foods that contain it occasionally, but our need is absolute. For millenia we were dependent on getting it in naturally occurring forms. Then we learned to manufacture it as ascorbic acid. Likewise, by identifying the function of war in our psyches, we can see what it will take to end our dependency on it.

People will do anything to lay bare and experience their essence, even knowingly put their lives at risk. No human activity so thoroughly unmasks the pretense of control with which we daily comfort ourselves as does war. It is exhilarating to abandon all one's identities — in short, one's self — to fate, and to experience being swept along pell-mell in the universal life current.[9] It not accidental that the first thing done in basic training is to strip new recruits of their old identities and create new ones. At the other end of the process, as the battle becomes imminent, the connection between war and religion is often explicit, as in the *jihad,* for example.

We will not succeed in giving up war in the last resort until we have discovered a "better" game. A better game must be better at bringing us to fresh choice points — points at which personal and social transformation are possible. That is

9. The individual and the societal levels are of course different, and a more complete treatment would separate them and spell out the interaction between levels, the role of leadership in shaping and mobilizing mass opinion, and the conditions under which leadership can fashion a group resonance by compounding individual psyches. Differences in males' and females' relationship to war could also be separated out and elaborated in a more detailed treatment, but are not essential to the bird's-eye-view perspective of this essay. Men and women — through no evil of their own, and as a condition of survival — have colluded in getting us into the present predicament, and we shall either all get out of it together or not at all. These caveats apply throughout this essay.

why great projects (like building the pyramids, going to Mars, ending world hunger) are not a substitute for war: they are grand, they are noble, but there just isn't enough risk to go around, to challenge enough of us to transcend ourselves. To find out who we are and what life is, it is necessary, one way or another, to risk one's identity. This has meant, as T. S. Eliot says, and many who have had a brush with death, or weathered a significant humiliation (ego-death) have learned, that "it is worthwhile dying, to find out what life is." And it is this secret payoff that has kept war in business through the centuries. Despite its horrible costs, and when nothing else seems to work, war has delivered the ultimate good: direct contact with coursing Reality, the touchstone of transformation. With such spiritual underpinnings war scarcely needs the traditional economic and political ones to justify and perpetuate itself; these are almost excuses! Little wonder we're still under its spell![10]

So a better game than war would have to do something that delivers the experience and the teaching that putting one's life at risk delivers, and furthermore delivers it, as war does, to the society as a whole. Preparing for war — the arms race — is definitely *not* a better game than war. This is why deep down we sense that sooner or later deterrence will fail. Peacetime armies all become lax — there is no bottom line. Like listening to the referee explain the rules instead of playing, the arms race gets boring.

The consolidation of military power and inauguration of AmerRuss would not provide a better game either; they would not even provide a new game. By eliminating nations as sovereign entities, however, AmerRuss does end the old game of war as between nations, through the strategem of capturing all the other "players." If you can't invent a better game than the one you love, and that love has become an addictive dependency that threatens your complete destruction — ending *all* games — then the only thing to do is to make the game unplayable.

Yet this kind of cold turkey is seldom undertaken deliberately — doing so runs against the existential grain. All metaphors for war fail in crucial respects, but a little light is shed on this situation by that of the compulsive gambler. Imagine that all casinos close their doors forever. What does a gambler do without the games to which he is habituated? For a while he flounders in depression, and then he begins the quest for other ways to place himself (or some surrogate thereof, like his money) at risk. While he searches, he is at least temporarily freed from, and disidentified with, his old addictive mechanism — that of gambling — for dispelling his existential despair and obtaining his spiritual fix. Following the collapse of the old mechanism and during the search for a replacement, there is the possibility that he will change in some way, and perhaps even end his dependency on ritual fixes. If he does fail and reverts to his old pattern, he'll probably first try to get a craps game going in the street! But this apparent breakdown of the metaphor cuts more sharply the other way: with the advent of *Pax AmerRussia* there would be no possibility of creating a war in the street.

In a world devoid of the risk of war, what *would* we do for a spiritual fix? For awhile there would remain in some quarters considerable nostalgia for our lost warrior identity. For this time-honored identity is not simply one among many. Rather it is the only identity that has the self-referential character placing itself at risk and thereby revealing to the warrior, and to all those who are depending on him, that they are not limited to being who they (and others) have been taking themselves to be. Thus the ending of war, and with it the traditional warrior role (as both actually and vicariously lived), will require and produce alternative paths for challenging and probing ourselves, for discovering who it is that we really are (or, more accurately, are not), so that we may escape stagnant ways, recreate ourselves and play anew. In this respect the ending of war differs from the ending of hunger. Ending hunger in the world would yield a less fundamental transformation of the human spirit because hunger is perceived primarily as a threat to others![11] War is the threat we hold over ourselves, so living without *it* heralds a new age. Dare we remove the sword? Dare we not?

Clearly, it is unnecessary to place life itself at risk, merely to place our identities at risk. All that needs killing is the unconscious practice of taking ourselves to be any fixed identity. What must be killed if we are to live life to the fullest is the confused belief that we are our personalities — the self-images in which we take pride — and that therefore these images, individual and collective, must be defended to the death. The notion of "warrior" in a world without war becomes generalized to any role the playing of which

10. The collapse in the nuclear age of the distinction between "players" and "spectators" in the "game" of war is also a crucial and transforming element. For more on the themes in this section see "A Better Game Than War," *Evolutionary Blues,* Vol. 2, Box 4448, Arcata, CA 95521; reprinted in *The Peace Catalog,* Press for Peace, Seattle, WA, and in *Citizen Summitry: Keeping the Peace When It Matters Too Much to be Left to Politicians,* J. Tarcher, L.A., St. Martin's, N.Y.C., 1986.

11. Much of the remaining hunger in the world is in fact caused by war. Intentional starvation has become a weapon in wars for political control. It also true that some wars (especially revolutionary wars) are caused, or at least driven, by hunger. To the extent that hunger can be eliminated on earth without first eliminating war, this will change us because we will then have the knowledge that we are capable of doing this, that we have in fact done it, and that we need never again countenance starvation or hunger among fellow citizens, anywhere on earth. The world's minimum standard of compassion will thereby be raised irreversibly, which in turn will affect our tolerance for war.

places oneself and consenting others (for whom one is serving as champion) at risk.

History is "The Case of Mistaken Identity" and nuclear weapons bring either the solution or the closing of the case. Using them would be double overkill: not only would we kill everything, we would kill the wrong thing. It would be throwing the baby (the human race in its infancy) out with the bathwater (our pride in the current *story* of ourselves).

There *is* no better game than war for men and women as we've known them. In accepting that our ultimate dependency on war for redefining ourselves now threatens the continuation of life on earth, and so, deliberately and resolutely, setting things up so that we can no longer play, we create the conditions in which human beings may come of age, and Shakespeare's angels dry their tears.

> But man, proud man!
> Drest in a little brief authority, — most
> ignorant of what he's most assur'd,
> His glassy essence, — like an angry ape,
> Plays such fantastic tricks before
> high heaven,
> As make the angels weep.
> —Measure for Measure, II, ii.

The View From Moscow

Every vegetable ripens in its own time.
—Russian proverb

Moscow, July 1986

[redacted]

I AM IN MOSCOW working on plans for a Soviet-American spacebridge that will bring together, in a live TV hookup, scientists from both nations to address the issue of safer nuclear energy. After initially stonewalling on the nuclear disaster at Chernobyl, the Soviets have become quite forthcoming and cooperative. Both sides want this spacebridge to lead to a joint Soviet-American working committee to (1) study the design of an inherently safe nuclear reactor[12] and (2) plan for joint responses to any nuclear emergencies that might arise. After two days of discussion we sign a protocol agreement in both English and Russian setting forth these intentions. I think of AmerRuss.

How does the AmerRuss scenario play in the imagination in Moscow? I reread my musings as the sun rises early one morning. The sky has been dark only briefly, as the summer nights are very short this far north. Would AmerRussian hegemony be a summer's night — short, warm and white — or would it be more like a winter's night — long and cold and dark, like the night upon which it first filled my imagination, a year and a half ago?

This question is a primary concern to anyone who considers AmerRuss. I've found that even to bring AmerRuss up as a hypothetical possibility makes many people angry. For a while after it first presented itself I thought of AmerRuss as "a rhinocerous in the living room," so incongruous and trouble-making was it. Now, looking at it for the first time from within the Soviet Union, I find myself examining everything I see here for its possible bearing on this matter.

That there is a fresh wind blowing in Russia these days is unmistakable. It's not a storm that sweeps across the land heralding sudden liberalization, but rather indicative breezes, detectable in interpersonal settings. I wonder whether these small changes provide clues as to the possible nature of AmerRuss?

. . . In the countryside every peasant home has a barrel in which old crusts of bread are thrown, along with molasses, malt and sugar to ferment into a drink called "kvass." From this drink comes the expression "kvass patriotism," the unthinking, blind-to-faults chauvinism found in all nations. On a recent TV program the ubiquitous shopping queues were criticized. When someone made the stock propaganda denial "What queues?," it was ridiculed as kvass patriotism. Word has been passed along that kvass patriotism is out on Soviet TV, at least for domestic consumption.

. . . On a recent Soviet-American spacebridge, a "women's summit" hosted by Phil Donahue and Vladimir Pozner, a Russian girl supported an American's criticism of emigration restrictions on Soviet Jews. That this was *not cut* from the version broadcast in the Soviet Union was unprecedented. The Soviet producers who edited the tape for broadcast were proud to have pioneered such openness, the opposite of kvass patriotism. The following day people were overheard earnestly discussing the broadcast on a city bus.

. . . Western politicians and other representatives are for the first time being given some air time on Soviet TV, along with the usual reliable Eastern European socialists.

. . . A manifesto for political and economic reform in the Soviet Union was obtained in July 1986 by *The Guardian*[13] and NBC News. It called for political "groupings" and freedom of the press and of speech. It was signed by the "Movement for Socialist Renewal" and was said to come from senior offical sources in Moscow. It could be disinformation, a western-style leak from opponents of the reforms (or from spon-

12. The phrase "inherently safe" means that the reactor is designed in such a way that the laws of physics themselves shut it down in case of mechanical failures. See *Scientific American,* July 1986.

13. Lead story, p. 1, *The Guardian,* July 22, 1986.

sors), or it could presage something very important. Nobody who knows is saying.

Such instances and others, taken in the context of postwar Soviet history, suggest that freer public expression is emerging, eventually, even in a tightly controlled system. There are so many levels at which dissenting thoughts may seep out. Trying to stop them is like trying to fix a leaky roof. Thus, although religion is virtually unmentioned in the public domain in the Soviet Union, discussion of spiritual questions continues, all the more intensely, in private quarters. The proper distinction is not whether there is freedom of expression within a state. It is rather where expression is suppressed, and where it is not. Public policies to stifle expression merely result in shifting its locus — in extremely repressive situations, all the way back into the privacy of individuals' minds and dreams. A great merit of free public expression is that more people can involve themselves vicariously in a discussion, both as listeners who then willingly support the outcome and as contributors who may shape the outcome from well beyond the circle of speakers.

But even if the Soviet Union were to have undergone significant liberalization by the time it joined with America to form AmerRuss, one couldn't, with any confidence, extrapolate from such initial, separately observed levels of human rights practices to the situation that would obtain in AmerRuss itself. Under AmerRuss, *all* old rivalries become internal ones, and thus AmerRuss would have to span a much wider range of political practice and social custom than either the Soviet Union or the United States, which are themselves both highly heterogenous societies. The creation in AmerRuss of a new overall context within which the danger of international war has been eliminated might at least bring many latent quarrels, hitherto suppressed, out into the open. That a lid would be placed on the level of violence permitted *between* old rivals does not guarantee that a militarily omnipotent state would restrain *itself* in dealing with dissent. And there is nothing like the "narcissism of small differences"[14] for fueling and justifying man's inhumanity to man. People are never more ruthless than when trying to suppress ideas that threaten the control and unity of their group. Examples can be found in the American civil war, the Spanish Inquisition, and the reigns of terror following the French, Russian, and Chinese revolutions.[15] While much can be done to create a balance of power within a state, there is ultimately no way to lay fear of absolutism to rest, nor should we try to do so. Even in societies with secure human traditions, their maintenance requires, at the very least, constant vigilance from informed citizens.

In the Soviet Union, one is always aware of the fact that when the world was faced with the evil of Nazism, America and Russia actually *did* join together with others to eradicate it. Sometimes I think that this much more modest role is the one for AmerRuss to play: to live in the imagination as a potential police force, to be activated only in the event of a sufficiently grave threat to the planet. Until such a time, America and Russia would remain apart and continue narcissistically to spar with each other. But, like parents who present their children with complementary, even inconsistent, role models, they would unite in the face of any disciplinary problems that threatened the human family. These threats having been handled, they would then again drift apart (as after World War II), but stand forever ready to suspend their rivalry should the salvation of the world require it. AmerRuss as such would have the status of a tacit, latent agreement: to join forces in order to save the world, but only if absolutely necessary, as a last resort.

However, what could someday move America and Russia towards true union rather than just an occasional alliance would be the mixing of peoples. The lifeblood of a real AmerRuss would be daily meetings in offices, homes, cafes, hotels, and bedrooms, in spaceships, on beaches and farms and stages: working together on common tasks and building relationships. The juice is in work and love. It is from these activities that meaning and identity are taken, more than the link to nationality, let alone adherence to some new synthetic constitution, no matter how wisely drawn up. Think of how in the United States, Irish, Italian, Polish and African identities have receded in importance in face of daily interpersonal relations in the imperfect melting pot that is America. So too in AmerRuss, remaining patriotisms would become local, not national. They'd eventually be historic, nostalgic, and cultural, like the Pennsylvania Dutch, or the Hawaiian Chinese.

It is through identifying with the whole that one experiences completeness, unity, and security. Fear springs from taking on a partial — or partisan — identity. Doing away with intermediating national sub-identities eliminates one of the dualities that spawn fear. With the weakening of national sovereignties, and the replacement over time of national by cultural identities, AmerRuss

14. This colorful phrase is Freud's; I don't know where he said it.

15. An op-ed piece in *The Wall Street Journal* (July 7, 1986), by R. J. Rummel (a professor of political science at the University of Hawaii at Manoa) claims that the number of people killed during the 20th century by totalitarian or extreme authoritarian governments is about 120 million, which if true, far exceeds the approximately 36 million killed this century in all wars, civil (6 million) and international (30 million). Mr. Rummel concludes that "absolutist governments are many times deadlier than war . . . and that absolutism, not war, is mankind's deadliest scourge of all." If this analysis is correct, the risk in following the AmerRuss scenario may be very grave indeed, and only pale in comparison with all-out global nuclear war itself.

— perhaps renamed by then to better reflect the globality encompassed — would provide the context within which the disintermediation[16] of identity could proceed, and the next step in the perennial quest for selfhood could occur.

★

THESE AMERRUSS thought experiments, while occasionally adopting the voice of advocacy (so as to explore possibilities), have been basically a mental journey, investigating several questions. These questions do not lend themselves to definite yes or no answers, but perhaps there is value in them. Here they are once again:

1. Is there any logical way — other than war, but consonant with the realities of military power — to end an arms race among multiple independent sovereign states?

2. If a military monopoly like AmerRuss were created, what forces (political, psychological and spiritual) could be mobilized to offset that military force and hold it at bay so as to preserve individual liberty and protect social pluralism and the diversity of cultures?

3. What human needs have been served by war, making it so difficult for us to give up? What will we become as we do so?

History shows two great tendencies: on one hand there is the imperial thrust to bring ever more land and peoples under one sovereignty; on the other hand there is the growth of the power and liberty of individual human beings, now numbering five billion strong. These tendencies often seem to be in conflict. The French certainly held Germany's attempt to create the Third Reich as inconsistent with their liberty;[17] all Europe resisted Napoleon's imperial designs. On the other hand, there are numerous examples in which the creation of larger, encompassing sovereign bodies enhanced the personal power and liberty of the individuals within them. The formation of many of the European states and of the United States itself are examples. These reflections have explored whether it might be possible to give both tendencies their due at once, and to see to it that they culminate in a tie, so to speak, killing two birds — war and tyranny — with one stone.

Much well-intentioned peace work ignores the realities of power, and in doing so acquires a certain utopian flavor. AmerRuss accepts the existence of power, or more precisely, the fact that there are always people who join forces to seek it.[18] Rather than wishing power away, AmerRuss explores the *use* of power, aikido-style, to get us to the One World so long envisioned by idealists.

Here then is a final look at this global historical dynamic:

America and Russia join forces, becoming irreversibly unified in the process, against the greatest threat the world has ever known: the Bomb. AmerRuss uses its great relative military and geopolitical advantage to persuade, threaten, and/or coerce the other states into nuclear disarmament. The bomb is finally banned, once and for all. Moreover, after a shakedown period — the duration and excesses of which can only be speculated upon — AmerRuss outlaws war and all weapons with which it might be made.

In time, there is a thaw. All people everywhere find themselves free citizens of One World, and the transitional name "AmerRuss," with its connotations of nationalisms, past unpleasantness, and special status for former superpowers, is dropped in favor of "Earth." AmerRuss has dealt our old process of identity formation and transformation a one-two punch. First, no subsovereignties remain to provide individuals with national identities. Nation-states, the pieces that would play the spellbinding game of war, have been removed from the sequence of identities that bridges the gap between us as individuals and the whole human race. There is henceforth a hole in series like — John (or Jane) — Doe family member — Manhattanite — New Yorker — American — Westerner — World person — right at the charged spot ("American"), which carried citizenship in a sovereign power. Secondly, there is no longer any recourse to war, through which people have laid *all*

16. For elaboration of the concept of disintermediation, see Paul Hawken's article in *CoEvolution Quarterly* #29 (Spring 1981).

17. The French declined an offer from Churchill to merge with Britain into a single new sovereignty in lieu of surrendering to the Germans in June, 1940.

18. For a brilliant discussion of the problem of power in social evolution see *The Parable of the Tribes,* Andrew Bard Schmookler, Houghton Mifflin, Boston, 1986 (reviewed in *Whole Earth Review* #43, p. 71).

their identities, both individual and group, on the line, thereby creating the possibility of individual and social transformation.

Deprived simultaneously of his main intermediating identity ("I'm an Englishman!"), and his ultimate solution for existential and social despair ("Let there be war!"), Man feels alone and afraid despite his newly found physical security and political wholeness. A scramble ensues to find new subidentities (e.g., the nostalgia for community, the allure of bioregionalism, the attraction of cults and of old and new religions). Will any of them take hold? Or lacking in attendant risk, will they all seem hollow and pale in comparison with nationality?

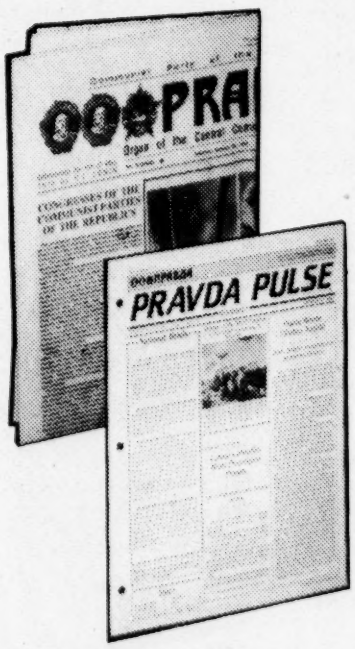
And what then? What do we do for an encore? It is impossible to say. But one thing is certain. Whatever it is, it will certainly up the ante, not lower it: before we get too comfortable with our new metaphysical station — as both the unit and the unity, the nothing and the everything — we'll be off romping around in our universe, looking for fresh trouble. ■

Pravda • Pravda Pulse

I can imagine few things less inviting than reading ***Pravda****, the offical newspaper of the Communist Party of the Soviet Union, over breakfast each morning. However, if you are looking for the official Soviet version of the news (and for interminable transcripts of Party Congress speeches), this is the place. Curiously enough, if you are looking for unexpected insights into Russian culture,* ***Pravda*** *is also worth checking out. You're likely to discover that prime-time TV fare in Moscow consists of I. Smoktunovsky reading verses from Pushkin! Since the English-language edition of* ***Pravda*** *has been turning up on some newsstands lately, you may be able to locate a recent copy nearby.*

As an alternative glimpse into the official news, Florida-based ***Pravda Pulse*** *provides a biweekly eight- to ten-page newsletter condensing and excerpting the previous month's articles.* ***Pravda Pulse*** *also reprints news items from Tass and Soviet radio, as well as the satirical cartoons of* ***Krokodil****, the Russian humor magazine.*

*—Jay Kinney [****Pravda*** *suggested by Brian Siano]*



Pravda
$630/year
(356 issues) from:
Associate Publishers, Inc.
2233 University Avenue
Suite 225
St. Paul, MN 55114

Pravda Pulse
Timothy Sinnott, Editor
$64.20/year
(26 issues) from:
News Pulse, Inc.
Drawer 4323
Fort Pierce, FL 33448

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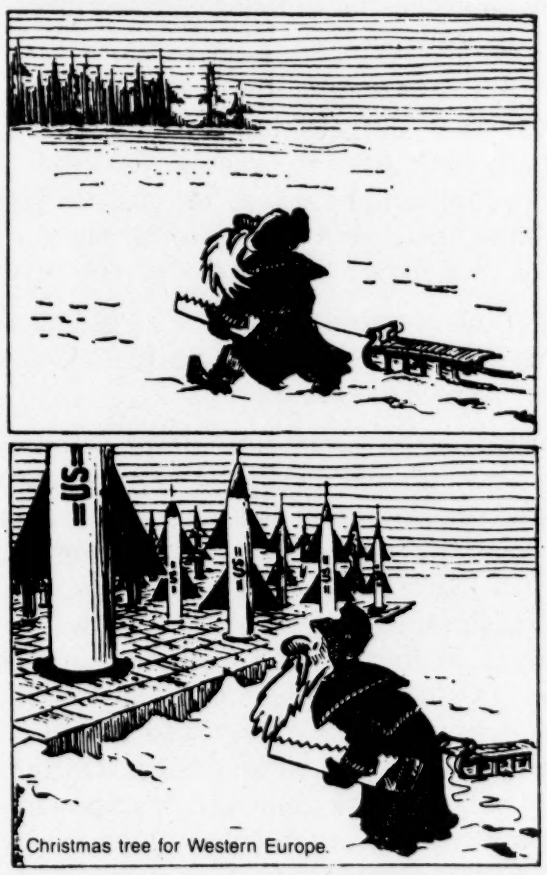
Managers caught distorting results quite often explain their "slyness" like this: "Well, sure, I may have added something, but then I worked it out." As they say, just a white lie. It must be firmly declared that the law does not recognize a single valid reason that would justify deceiving the State. The so-called "objective" difficulties with the delivery of materials and completed articles are also used as arguments of justification. Upon checking they quite often turn out to be the result of partners going easy on one another, inabilities, and at times a lack of desire to use legal means to influence violators of State discipline. . . .

Глазами художника



Christmas tree for Western Europe.

(IZVESTIYA, Dec. 23)

—Pravda Pulse

A criminal case brought against several workers of the Rostov Province Trade Administration can be cited as a serious warning. Former administration head K. Budnitsky found "like-minded" individuals within the RSFSR Trade Ministry, and for a bribe obtained favorable apportionments of transport, technological equipment, supplementary funds for textiles, clothes and shoes, and corrections of commodity circulation plans. Those taking bribes, as well as those doling them out, will be held criminally responsible. *—Pravda*

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After being in a contaminated area and when entering dwelling or production premises it is necessary first of all to clean clothes and footwear of radioactive dust. It is categorically forbidden to consume foods which were not covered and to drink water from uncovered containers. Only products which were stored in cellars, refrigerators, kitchen tables, cupboards, covered glass and enamel kitchen utensils or were wrapped in various materials can be used for consumption. Water for drinking and for preparing food can be taken only from water mains and from protected wells, and in winter from water reservoirs covered with a thick layer of ice. *—Pulse*

Peter the Great
Robert K. Massie
1980; 909 pp.
$9.95
($10.95 postpaid) from:
Ballantine Books
400 Hahn Road
Westminster, MD 21157
or Whole Earth Access

Cassette tape version
$48.50 (rental) from:
Books On Tape
P. O. Box 7900
Newport Beach, CA 92660

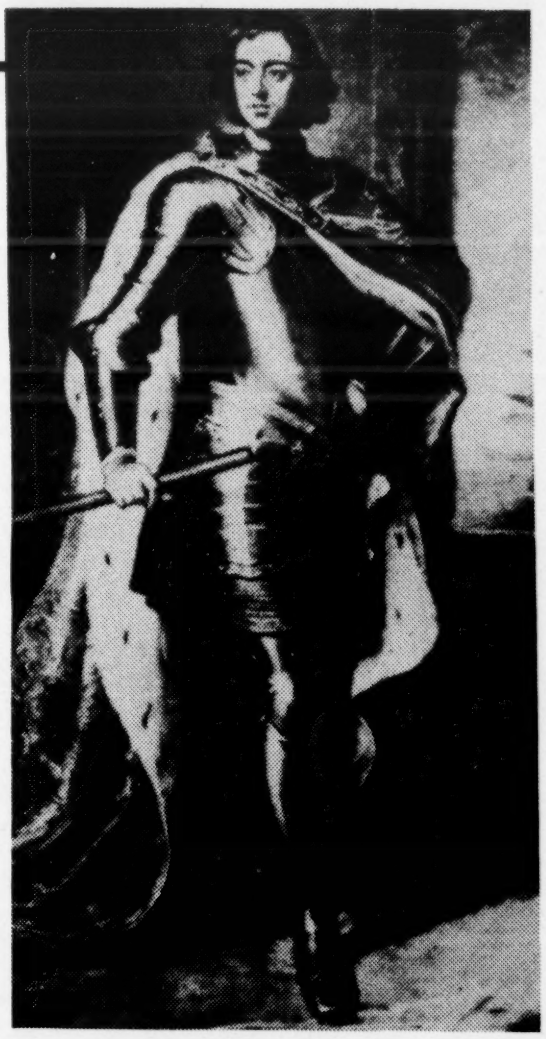
Peter the Great

I began this captivating book fairly ignorant of Russia's history, but finished enlightened by the news that much of what we love to hate about Russia (its habit of exiling dissidents to Siberia, crudeness in manners, secrecy, and xenophobia) are traits commented on by visitors centuries ago. Likewise, the Russia we hate to love (its earthy pragmatism, sincere magnanimity, allegiance, social responsibility) owes much of its contemporary style to a lanky, freakishly tall (six-foot, seven-inch) giant who avoided books, hated pomp and ceremony, and instead spent his time working with his callused hands in shipyards he founded.

He was Peter the Great, the first Tsar to travel to Europe, the king who modernized the religiously feudal hinterland of Russia, a workaholic with a distracting facial tic who wrecked hotels with drunken pranks, a loving husband who was profoundly pious and an expert torturer, a military genius who built Russia's navy out of a decaying river barge, and a feared dictator who stirred the sleeping Bear into the anxious giant it now is.

Peter was, above all, ceaselessly curious about how things worked in the world, and his relentless inquiries into EVERYTHING feed this Pulitzer Prize-winning biography with hurricane-like energy, bringing into its eye not only the evolution of Russia but the rest of Europe as well.

I listened to this book on 32 cassette tapes (from Books On Tape) while commuting this summer, and haven't had such an educating and entertaining time in years.
—Kevin Kelly



Peter in England, by Sir Godfrey Kneller, 1698.

◄ **Medallion indicating that the wearer has paid a tax in order to retain his beard.**

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For most Orthodox Russians, the beard was a fundamental symbol of religious belief and self-respect. It was an ornament given by God, worn by the prophets, the apostles and by Jesus himself. Ivan the Terrible expressed the traditional Muscovite feeling when he declared, "To shave the beard is a sin that the blood of all the martyrs cannot cleanse. It is to deface the image of man created by God." Priests generally refused to bless men without beards; they were considered shameful and beyond the pale of Christendom. . . .

Peter, beardless himself, regarded beards as unnecessary, uncivilized and ridiculous. They made his country a subject of mirth and mockery in the West. They were a visible symbol of all he meant to change, and, typically, he attacked, wielding the razor himself. Thereafter, whenever Peter attended a banquet or ceremony, those who arrived with beards departed without them. Within a week of his return, he went to a banquet given by Shein and sent his court fool, Jacob Turgenev, around the room in the role of barber. The process was often uncomfortable; shaving long, thick beards with a dry razor left many gouges and cuts where the sharp blade came too close. But no one dared object; Peter was there to box the ears of any who showed reluctance.

. . . Officials were given the power to cut the beard off any man, no matter how important, whom they encountered. At first, horrified and desperate Russians bribed these officials to let them go, but as soon as they did, they would fall into the hands of another official. Before long, wearing a beard became too expensive a luxury.

Eventually those who insisted on keeping their beards were permitted to do so on paying an annual tax. Payment entitled the owner to a small bronze medallion with a picture of a beard on it and the words TAX PAID, which was worn on a chain around the neck to prove to any challengers that his beard was legal.

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When offended European hosts suggested that Russian ambassadors conform to Western practices, the Russians coldly answered, "Others are not our model."

In addition to being ignorant and arrogant, Russian envoys were rigidly limited as to their freedom of action. Nothing could be agreed to in negotiation unless it had been foreseen and accepted in their advance instructions. Anything new, even of the least importance, had to be cleared with Moscow although this effort required weeks of waiting while couriers rode. Thus, few courts welcomed the prospect of a Russian mission, and those foreign officials detailed to deal with a party of visiting Muscovites considered themselves to be powerfully unlucky.

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Although public torture and execution were no novelty to any seventeenth-century European, what struck most visitors to Russia was the stoicism, "the unconquerable stubbornness" with which most Russians accepted the terrible agonies. They steadfastly resisted hideous pain, refusing to betray friends, and when condemned to death they went meekly and calmly to the gallows or block. An observer in Astrachan saw thirty rebels beheaded in less than half an hour. There was no noise or clamor. The condemned men simply went to the block and laid their heads in the pools of blood left by their predecessors. None even had his hands tied behind him.

This incredible hardiness and unconquerable endurance of pain astonished not only foreigners but also Peter himself. Once, after a man had been tortured four times by knout and fire, Peter approached him in sheer wonder and asked how he could stand such great pain. The man was happy to talk about it and revealed to Peter the existence of a torture society of which he was a member. He explained that nobody was admitted without first being tortured, and that thereafter promotion within the society rested on being able to accept higher grades of torture. To this bizarre group, the knout was nothing. "The sharpest pain of all," he explained to Peter, "is when a burning coal is placed in the ear; nor is it less painful when the head is shaved and extremely cold water is let fall slowly drop by drop upon it from a height."

A modest proposal for a

WILDERNESS PRESERVE SYSTEM

by Dave Foreman and Earth First!

WE CLAIM THAT HUMANS HAVE NO DIVINE RIGHT to subdue the Earth, that we are merely one of several million forms of life on this planet. We reject even the notion of benevolent stewardship as that implies dominance. Instead we believe, as did Aldo Leopold, that we should be plain citizens of the land community.

The practical application of this philosophy is that large sections of Earth should be declared off-limits to industrial human civilization, as preserves for the free flow of natural processes. These are not the puny and truncated wild areas anthropocentrically protected in national parks and wilderness areas. It is not enough to preserve the remaining roadless, undeveloped country. We must re-create wilderness in large regions: move out the cars and civilized people, dismantle the roads and dams, reclaim the plowed land and clearcuts, reintroduce extirpated species.

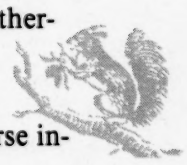
Significant areas of the Earth should be zoned for such preserves now: much of Australia, the North American Arctic, the Amazon, Tierra del Fuego/Patagonia/Southern Andes, New Guinea, Borneo, Greenland, Antarctica, Baja and the Sierra Madre in Mexico, the Galapagos Islands, the Falklands and South Georgia, the Sahara, the Congo Basin, Siberia, the Tien Shan/Gobi/Sinkiang region of Central Asia, as well as large realms of the oceans. While gasoline, asphalt, and concrete would be banned, indigenous peoples living a *traditional pre-European-contact* lifestyle could remain.

Even in the over-developed countries, much can be done to restore ecological diversity and balance. A large percentage of the United States should be returned to its natural condition. We should have large wilderness preserves for *all* our biological communities. We foresee this being done with minimal economic loss or disruption of communication and transportation.

In the draft plan presented here for a Wilderness Preserve System in the lower 48 United States, we have used the Bailey-Kuchler ecosystem map as well as our personal knowledge and information from others to identify examples of all ecological communities that have the best potential for recovery to at least a quasi-wilderness condition. Although re-creation of meaningful wilderness will, in some areas, require the relocation of several thousand people or the removal of major installations, we have striven in this draft proposal to exclude significant population centers, agricultural and industrial zones, important highways, railroads, and powerlines. Nonetheless, our first priority has been protection of intact ecosystems.

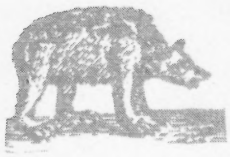
The general guidelines for these preserves include:

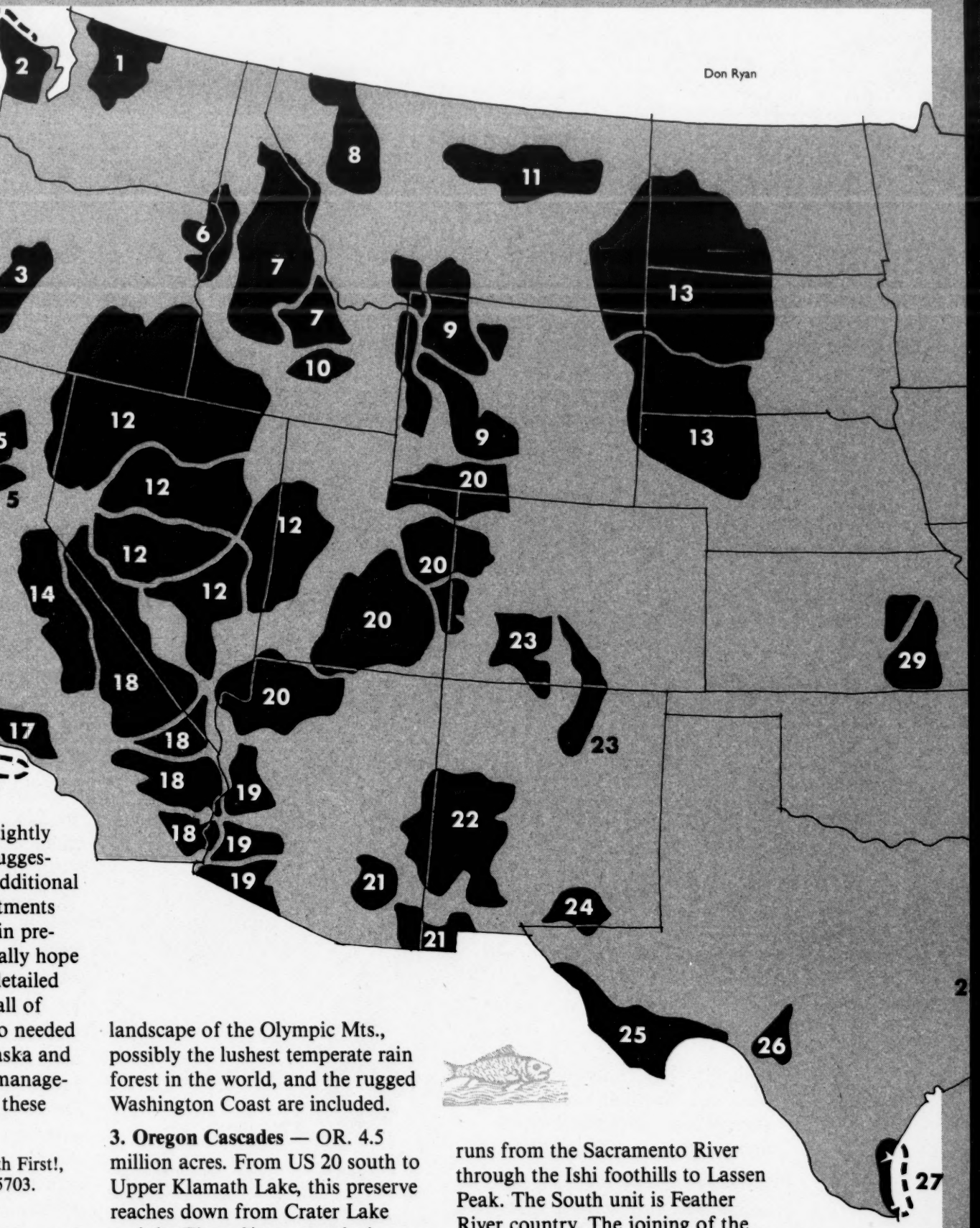
- No permanent human habitation except, in some cases, indigenous peoples living traditional (pre-1500 A.D.) lifestyles
- No use of mechanized equipment or vehicles
- No roads
- No logging, mining, water diversion, industrial activity, agriculture, or grazing of domestic livestock
- No use of artificial chemical substances
- No control of wildfire (except during a transition period if needed to return to a natural fire regime)
- Reintroduction of extirpated species
- Removal of exotic species where possible
- Dismantling, removal, or destruction of dams, roads, powerlines, buildings, structures, toxic substances, etc. where feasible, or allowing them to deteriorate otherwise (over time)
- No overflights by aircraft
- Elimination of outside adverse influences such as acid rain
- Priority given to preservation of the ecosystem and native species over the safety and convenience of the human visitor
- Limited corridors may be designated in some preserves for necessary pre-existing transportation, utility and communications systems



The proposal presented here is our *draft* for a Wilderness Preserve System which will allow meaningful wildness to coexist with human civilization on the North American continent. Of course it is ambitious, even visionary. But it is impractical and outrageous only in the context of the bizarre utilitarian philosophy which separates one specie (*Homo sapiens*) from its place in the biosphere and from its relationship with the land community and life cycles of the entire planet.

Some of the larger preserves have been divided into several units by corridors for major transportation routes. These corridors should be as narrow as possible, and highways, railroads, powerlines, pipelines, population centers, and





visitor facilities should be tightly confined. We are seeking suggestions for refinements and additional preserves as well as commitments to work on finalizing certain preserve proposals. We eventually hope to produce a book giving detailed information and maps on all of these preserves. Help is also needed to extend the system to Alaska and Hawaii. Ideas on the non-management and rehabilitation of these preserves are welcomed.

• Send your comments to Earth First!, P. O. Box 5871, Tucson, AZ 85703.

Proposed Units

Note: Acreages are approximate and include ocean for coastal areas. The total acreage involved in the Wilderness Preserve System is about 716 million acres. Units east of the Rockies are very rough drafts. Help is particularly needed to refine them.

1. North Cascades — WA. 6 million acres. From the Canadian border to I-90, this high country paradise includes Glacier Peak, Mt. Baker, North Cascades Park, Pasaytan Wilderness, Lake Chelan, and the Alpine Lakes. Diablo Dam and Ross Dam will be dismantled.

2. Olympic Peninsula — WA. 4.5 million acres. US 12 is the southern boundary. The Port Angeles/Bremerton area is excluded. The glacial landscape of the Olympic Mts., possibly the lushest temperate rain forest in the world, and the rugged Washington Coast are included.

3. Oregon Cascades — OR. 4.5 million acres. From US 20 south to Upper Klamath Lake, this preserve reaches down from Crater Lake and the Three Sisters to take in lower-elevation forest recovery areas on both sides of the Cascades.

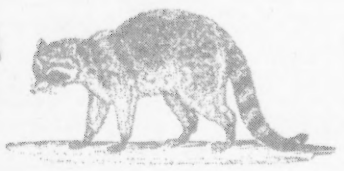
4. North Coast — CA & OR. 15 million acres. The most diverse coniferous forest on Earth is protected here and given a chance to regenerate. The area from near Coos Bay in Oregon to Clear Lake in California. Crescent City and the Eureka/Arcata area will be accessible only by boat, airplane, or foot. Rogue River, Kalmiopsis, Siskiyous, Redwoods, Trinity Alps, King Range, Sinkyone, Yolla Bolly, Marble Mountain, Kelp forests, big rivers, big trees, big fish and Bigfoot.

5. California — CA. 3.5 million acres (2.5 million and 1 million) divided by Hwy. 70. Oroville Reservoir will be drained. The north unit runs from the Sacramento River through the Ishi foothills to Lassen Peak. The South unit is Feather River country. The joining of the Sierra and Cascades, the foothills and the river valley. New home of the grizzly, wolf, valley oak and elk. Old California reborn.

6. Hells Canyon — OR, ID, WA. 4.5 million acres. Hells Canyon and the Eagle Cap Wilderness. Brownlee, Oxbow, and Hells Canyon dams have gotta go. Free the Snake River!

7. Idaho — ID, MT. 18 million acres in one unit with the Sawtooths, River of No Return, Selway/Bitterroot, and Clearwater reunited in one great wilderness. A second unit of 3.5 million acres includes the Lemhi, Lost River, Pioneers and White Cloud ranges with their intervening valleys.

8. Northern Rockies — MT. 6.5



million acres. Glacier Park, Great Bear, Bob Marshall, Lincoln/Scapegoat, Mission Mountains as one unbroken preserve for the big bear.

9. Yellowstone — WY, MT, ID. 25 million acres in 5 units in order to allow road access to Old Faithful, Yellowstone Lake and Canyon, and Jackson Hole. The Gros Ventre, Wind Rivers, and Red Desert are combined in an 11.5 million acre unit of great diversity. Tetons, Palisades, and Grayback are in a 3.5 million acre unit. The Madison and Gallatin ranges in MT/WY comprise 2 million acres. 7 million acres are included in the Beartooth/Absaroka unit. 1 million acres of the Bighorn Basin are also preserved.

10. Great Rift — ID. 2 million acres. This vast recent lava flow area includes Craters of the Moon.

11. Wild Missouri — MT. 7.5 million acres. The Wild Missouri and its Breaks. Fort Peck Reservoir will be drained.

12. Great Basin — NV, OR, UT, ID, CA. 66 million acres in five units. The first unit is the High Desert of NV, OR, and ID including Pyramid Lake, Black Rock Desert, Sheldon Antelope Range, Steens Mtn., Alvord Desert, and the Owyhee country, 30 million acres. The second unit is between I-80 and US 50 in NV and holds the Rubies and Clan Alpine ranges for 11 million acres. The third unit, also in NV, of 9 million acres is bordered by US 50, 6, and 95 and includes Arc Dome and the Monitor Range. Unit four is in NV between US 6 and 93. It has 7.5 million acres; Sheep Range, Quinn and Grant Ranges. The last unit of 8.5 million acres is in NV and UT with Wheeler Peak, Mt. Moriah, the Deep Creeks, Sevier Lake, and the southern part of the Salt Lake Desert.

13. Great Plains — SD, ND, NB, MT, WY. 58 million acres. Two units of 37 million acres to the north and 21 million acres to the south divided by I-90. Reintroduce the buffalo, grizzly, wolf, and elk. Free the Lakota nation. The Shortgrass Prairie and Black Hills can live again.

14. High Sierra — CA. 8.5 million acres. John Muir's country from the Domeland Wilderness nearly to Lake Tahoe and reaching down into the foothills. If you want to see Yosemite Valley, walk 20 miles. Hetch Hetchy will be freed of O'Shaughnessy Damn.

15. Big Sur — CA. 2 million acres. The stunning California coast without Highway 1.

16. Channel Islands — CA. 1.5 million acres. The water around them, too. Access by sailboat.

17. Condor — CA. 3 million acres of habitat for the big birds north of Santa Barbara in the San Rafael/Sespe-Frazier country.

18. California Desert — CA, NV and AZ. 27.5 million acres in five units divided by I-15, I-40, and I-10. Mono Lake, White Mountains, and Death Valley comprise 15.5 million acres in CA and NV. 3.5 million acres in CA and NV are in the unit centered on the Kelso Dunes. The Joshua Tree, Turtle Mtns., Whipple Mtns., and Colorado River south of Parker cover 6 million acres in CA and AZ. The Chuckawalla Mtns. and Colorado River south of Blythe comprise the fifth unit of 2.5 million acres. Some additional corridors or rerouting of transportation and utility features may be necessary.

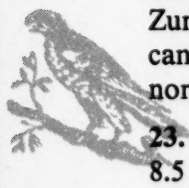
19. Arizona Desert — AZ. 9 million acres in three units of 3 million acres each: Cabeza Prieta/Organ Pipe; Kofa; Buckskin/Arrastra/Hualapi ranges. Sonoran and Mohave deserts meet. Leave it for the Gila monsters and Abbey.

20. Canyonlands — UT, AZ, CO, WY, NV. 36 million acres in five units. Draining Lake Mead gives us the Grand Canyon and Arizona Strip in AZ, NV, and UT of 8.5

million acres. Draining Lake Foul recreates Bob Marshall's largest roadless area and returns Glen Canyon to Everett Reuss' ghost. One-way road access from the ghost town of Page will be allowed so folks can view the remnants of Glen Canyon Dam as a monument to man's stupidity. 13 million acres. Arches, Westwater, and the La Sals make up 2.5 million acres in UT and CO. 5.5 million acres of wildness stretches from Desolation Canyon to the Book Cliffs in UT and CO. Sorry, boys, no oil shale development. Flaming Gorge Reservoir will be drained for a 6.5 million acre Uinta/Dinosaur/Abode Town unit in WY, CO and UT.

21. Sierra Madre — AZ, NM. 5 million acres in two units. 2.5 million are wholly in AZ and include the Galiuros, Pinalenos, Catalinas, Aravaipa and important mesquite-grassland valleys. The eastern 2.5 million acres are in NM and AZ with the Chiricahuas, Peloncillos, Animas, and Big Hatchets. Home of Trogon and coatimundi.

22. Mogollon Highlands — NM, AZ. 13 million acres. This is where the Rockies and Sierra Madre meet with the desert and the plains. Gila, Blue Range, Aldo Leopold, Mt. Baldy Wildernesses, San Francisco Canyon, Plains of San Augustin, Zuni Salt Lake. A special variance can allow the VLA to remain in the north part. Victorio wins in the end.



23. Southern Rockies — CO, NM. 8.5 million acres in 2 units: 4 million in the San Juan/Weminuche /La Garita/Big Blue/Cruces Basin of CO and NM; 4.5 million in the Sangre de Cristos of NM and CO.

24. Guadalupe Escarpment — NM, TX. 2.5 million acres. Carlsbad Caverns and Guadalupe Mtns. national parks. Carlsbad Caverns itself will have vehicle access but many other caves will be in the preserve.

25. Big Bend — TX. 6 million acres. The Chihuahua Desert of Big Bend National Park and the Rio Grande River. Presidio will be accessible by vehicle or train only through Mexico.

26. Hill Country — TX. 2 million acres. An important transition between the East and the Desert. Bounded by Uvalde, Del Rio, and Junction.

27. Texas Coast — TX. 2 million acres. Padre Island, Laguna Madre, and Laguna Atascosa Wildlife Refuge. Ocelots, alligators and Green Jays.

28. Big Thicket — TX. 1 million acres. The biological crossroads of America. Long live the Ivorybill Woodpecker!

29. Tall Grass Prairie — KS. 5.75 million acres in two units. 4.5 million between Emporia, Independence, Arkansas City, and El Dorado. 1.25 million between Emporia and Junction City. Let the long grass lick the bellies of the buffaloes and let the howls of the plains wolf awaken the ghosts of the Comanche.

30. Ozark — MO, AR. 4.5 million acres in two units. Ozark Water-Ways in MO is 3 million between Rolla, Potosoi, Poplar Bluff, and Willow Springs. The Ozark Mtns. of 1.5 million are in AR and bordered by I-40, US 71 and 65, and AR 68, 23, and 16.

31. Atchafalaya — LA. 6 million acres in two units. One of the world's great swamps. 5 million south of Lake Charles, New Iberia, and Houina. The other million between Morgan City and Plaquemine. A special corridor might be necessary for the Intracoastal Waterway.

32. Gulf Islands — MS and LA. 1.25 million acres in two units: .75 million in LA around Breton Wildlife Refuge and .5 million in MS around Gulf Islands Seashore. The surrounding waters are also included.

33. Alabama River — AL. 1.5 million acres. Southern bottomlands between I-65 and Alabama 10.

34. Apalachee — FL. 1 million acres. The Apalachicola National Forest and St. Mark's Wildlife Refuge.

35. Okeefenokee — GA, FL. 1.75 million acres. The Swamp from I-10 to Waycross, GA.

36. Everglades — FL. 8.75 million acres. It's time to reclaim the unique Everglades by returning its natural water flow to it. In addition to the Park, the unit would include Florida Bay, Big Cypress, Lake Okeechobee, and the Kissimmee River. Alligator Alley, Tamiami Trail, and US 27 would be closed.

37. Biscayne Bay — FL. .5 million acres. It's time to really protect our underwater/coral reef National Park.

38. Georgia Coast — GA. 1.25 million acres in two units north (.75 million) and south (.5 million) of Brunswick.

39. Santee — SC. 1.25 million acres. Cape Romain NWR, Francis Marion NF, Santee NWR.

40. Southern Appalachians — NC, TN, GA, VA, SC. 5 million acres in two units divided by I-40. The south unit of 3 million in NC, GA, TN, and SC includes the Great Smoky Mtns. and parts of the Nantahala, Chattahoochee, and Cherokee NFs. The north unit of 2 million in TN, NC, VA runs from Wytheville, VA to I-40.

41. Outer Banks — NC. 1.25 million acres. Cape Hatteras and Cape Lookout national seashores south of Nags Head.

42. Monongahela — WV, VA. 2 million acres. The high plateau between US 50 and I-64.

43. Delmarva — MD, VA. 1.4 million acres. The Eastern Shore south of Pocomoke City and Ocean City.

44. Eastern Deciduous Forest — IN, OH, KY. 1.65 million acres in three units: 2 in and around the Hoosier National Forest, 1 million acres and 330,000 acres; and 310,000 acres on the Ohio River in OH and KY. Let the big broadleafed trees have a place where they can live unmolested.

45. Adirondack — NY. 5 million acres. Let's reclaim most of this "forever wild" state park of northern forest, rivers, peaks, and lakes. Some corridors may be necessary.

46. Maine Woods — ME. 6.5 million acres. Thoreau's country. North of Maine 16 and between US 201 and I-95. Wild rivers, loons, moose, and Katahdin.

47. North Woods — MN, MI. 14 million acres in 3 units. The eastern unit is 6 million and includes the BWCA, Isle Royale, and part of Lake Superior. The central unit is between US 71, 53, and 2 and takes in 3 million. There are 5 million acres in the western unit from US 2 to Lake of the Woods. Dedicated to the blackfly, wolf, mosquito, canoe, and Sigurd Olson.

48. White Mountains — NH. To be developed.

49. Sand County — WI. To be developed.

50. Illinois Prairie — IL. To be developed. ■

Welfare Ranching

by Lynn Jacobs

In one of those fantasy dreams, Lynn Jacobs inherited some money that came at a time when the abuses of public grazing lands around his home in Arizona were becoming intolerable. He used the cash to print 200,000 tabloid newspapers, which he wrote, photographed, and pasted up himself, decrying the current ripoff, and started handing them out in his area to tremendous effect. A couple of copies came our way, and after we located Lynn (he lives off the road beyond phone lines), he agreed to do an edited version for us. —*Kevin Kelly*

LEGALLY, you and I and everyone living in the United States are joint owners of over 48 percent of the land area of the 11 western states (Washington, Oregon, California, Nevada, Arizona, Utah, Idaho, Montana, Wyoming, Colorado, and New Mexico). These federal "public lands" encompass an incredible amount and variety of country — some of the most diverse, productive, and fantastically beautiful territory in the world. We have the right to visit and enjoy these lands, and the responsibility to use them wisely and with respect if, indeed, we use them at all. At the same time, the land itself has the right to exist in a basically healthy, natural state, as it has for many millions of years, for its own sake as well as ours.

Presently 70 percent of the 11 western states is being grazed by the livestock industry. That's seven out of every ten acres *behind barbed-wire fences* with cattle and/or sheep on them.

Yet our "public grazing lands" (all grazed federal, state, county, and city lands), which comprise 43 percent of the land area of the 11 western states, produce only 2 percent of the red meat in the United States. The contribution of the public-lands grazing industry to our food supply is neglible. It is estimated that every person in the U.S. consumes 77 pounds of red meat per year. How much are we willing to pay for the 1⅓ pounds of this provided by public-lands livestock grazing?

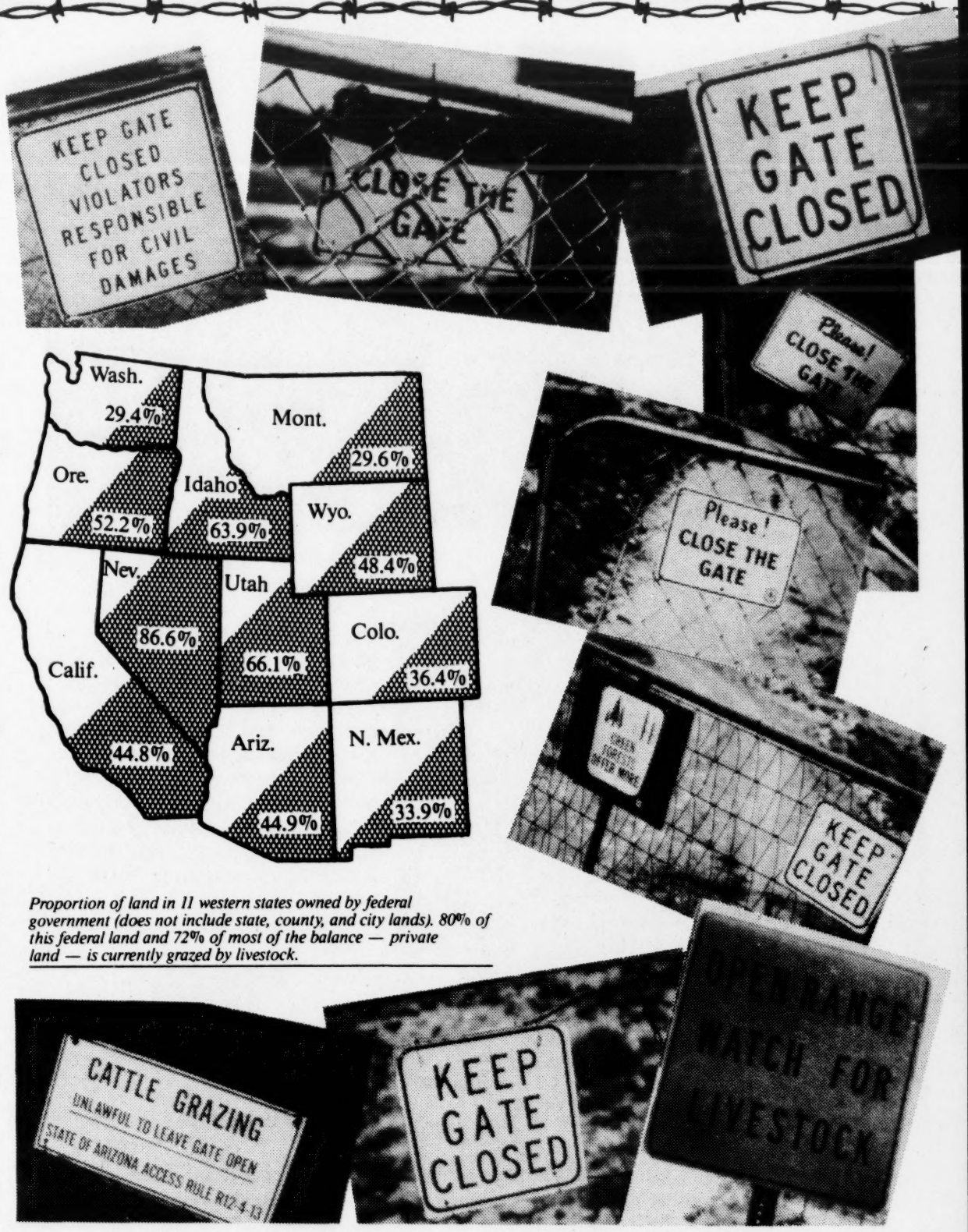
The American public is paying dearly to have its land overgrazed. By exploiting public fondness for beef and for the American cowboy, presenting an unobtrusive, harmless-looking image, and exercising its overwhelming political powers at all levels of government, the livestock grazing industry has managed to stick us with the bill for that overgrazing. The public-lands grazing industry is one of the most heavily subsidized businesses in this country. All levels of government give substantial financial support to the industry, from federal to state to county, and even some cities. It's a fact, acknowledged by many ranchers, that most public lands livestock

grazing operations would collapse without this heavy government support. What does this say for an industry that boasts and brags endlessly about rugged individualism, self-sufficiency, and resourcefulness?

Welfare ranching has become a way of life for the 30,039 permittees on public (Bureau of Land Management [B.L.M.] and Forest Service) lands in the U.S., and for most of those grazing other government lands as well. Some members of this comparatively tiny minority, who generally monopolize and degrade well over one-third of all the land in the West, are making a handsome living off the liberal generosity of the rest of us.

Many ranchers who graze public lands run their ranches at a subsistence level, or as a secondary business (sometimes a convenient source of a tax write-off or extra income) at a calculated level, knowing they will always get by with government aid and assistance. They pay minuscule grazing fees, almost no property taxes on their private lands, and are kept out of the red by government subsidies and assistance. In 1986, it cost an average of $1.35 to lease one A.U.M. — the amount of forage required to feed a cow for a month. This compares to lease fees ranging from $4 to $12 per month on private lands. A federal study has shown that the government spends about $10 on range improvements for each $1 it collects in grazing fees. The U.S. Treasury received about $9.2 million from all grazing fees in 1985. The annual government expenditure on the public lands is somewhere in the *hundreds of millions of dollars.* If one can decipher their figures correctly, the B.L.M. spent $38 million on range management in 1984. The Forest Service spent $69 million for specific range management programs.

In 1978, Congress passed the Rangelands Improvement Act, which authorized spending more than $365 million over the next 20 years for range improvements (seedings, waterholes, fences on federal lands) and more than $2 billion for range management programs on B.L.M. lands.



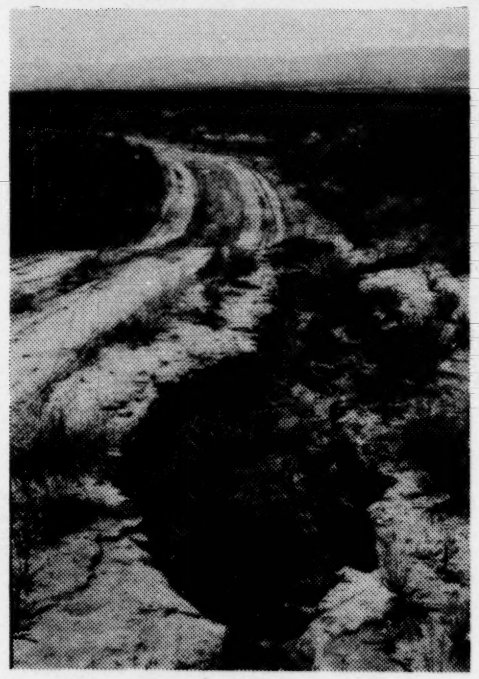
Proportion of land in 11 western states owned by federal government (does not include state, county, and city lands). 80% of this federal land and 72% of most of the balance — private land — is currently grazed by livestock.

Throughout most levels of government there is an attitude of dedication, subservience, and compliance to the demands of the livestock industry. There is a general feeling that the urban public majority will support almost any measure that helps western stockmen and appears to increase the production of beef. Permit conditions, local grazing regulations, and local range management programs, activities, and procedures, therefore *subsidy* programs, are often dictated as much or more by local stockmen serving as members of grazing advisory boards as by the employees the public hires to do that job.

The detrimental effects of livestock grazing are as endless as the ecological interrelationships they are damaging. On most rangelands, cattle eat most of the forage (grass and herbage cover) and a good amount of the browse (leaves on shrubs and trees).

With less plant cover, most animals, from insects to birds to large mammals, have less to eat, less cover in which to hide from predators, less vegetation in which to take shelter during extreme weather conditions, and fewer places to mate and nest — in short, less of almost everything they need to survive. Many haven't. Almost all suffer to some degree.

Overgrazing is expanding deserts throughout the world. In only a



Innumerable ranching access roads have opened up huge areas — perhaps half our public lands — to exploitation and abuse by a wide variety of pursuits, like mining, illegal hunting, dirt bikes, woodcutting, and dumping of toxic wastes. Besides making it possible for extensive overgrazing to occur, countless ranching roads themselves are a substantial detriment to the health of soil, plant, and animal systems. (Left) a seriously eroded grazing road in Yavapai Co., Arizona. When roads get like this, ranchers simply reroute their courses across virgin territory.

little more than 100 years of widespread livestock grazing in the western United States, many millions of acres of rich grasslands and semi-arid grasslands have become desert.

Their enormous weight and cloven hooves, along with their inbred clumsiness and stupidity, make cattle ideal soil destroyers, especially on the more fragile soils and steeper slopes of the West.

The U.S. Department of the Interior states that only agriculture (which *intentionally* manipulates the soil) outranks grazing as a cause of soil loss and damage. The B.L.M. says that 40 percent of its (our) lands are seriously eroded (which is likely to be an ultra-conservative estimate). Arroyos, gullies, and cutbanks are expanding, topsoil is disappearing, soil fertility is decreasing, and millions of acres are being converted to wasteland.

As heavy grazing has stripped off vegetative cover and decreased the soil's ability to hold water, *many thousands* of springs and creeks all over the West have gone dry, especially in the drier areas where they are most needed. Rivers and streams have experienced reduced flows, or flow only intermittently. The amount of surface water and water table levels have dropped in many areas, drastically in some. Entire watersheds in thousands of places around the West have been rendered virtually worthless for human use. Sediments due to grazing, manure, urine, and dead cattle are the main sources of water pollution in most grazing areas; in fact, a number of diseases and disorders are spread by this pollution.

Fire is as natural to the world we live in as grass and trees; grasslands and forest, especially, *need* natural fire in order to remain healthy. Livestock have so trampled, denuded, and degraded the western U.S. that huge areas of land are no longer capable of supporting fire. Bare dirt doesn't burn, nor do mere stubbles of grass.

There is a war being waged against our natural surroundings by private livestock operators and their professional and financial assistants in government. There are hundreds of thousands of miles of barbed wire fences on public lands, almost every mile of which need not exist other than as accommodation to the grazing industry.

Range improvements are attempts to modify natural ecosystems for profit and correct the disastrous results of intensive grazing. They are improvements only from a stockman's point of view. Nature has already provided us with the most abundant, diverse biosystem possible for each unique set of climactic, geographic, soil and hydrologic conditions.

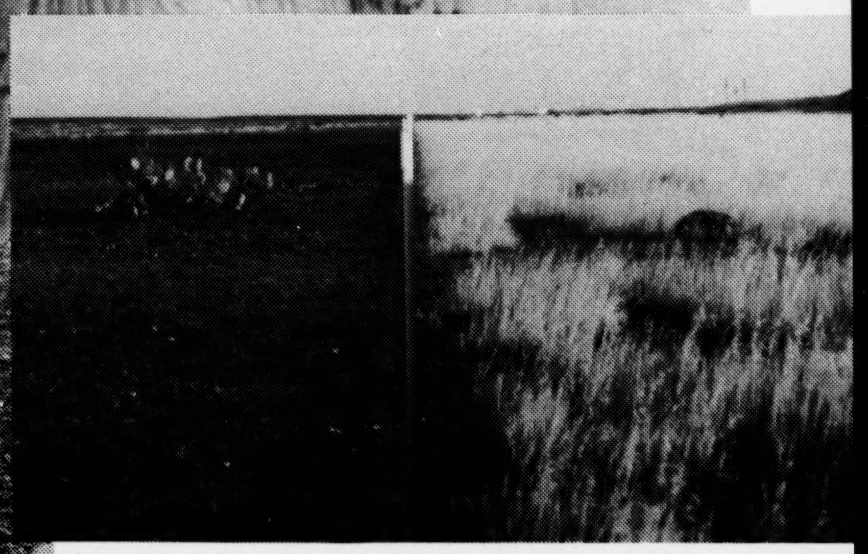
Though fences are almost omnipresent as it is, the federal government (Forest Service and B.L.M.) is launching a frenzied campaign to build an even more complex network that would include thousands of miles of new fences. This is a desperate attempt to up livestock production statistics by creating smaller grazing areas of more intensive management. It is also an attempt to justify bureaucratic growth while at the same time struggling to squeeze profits out of an already overgrazed and overmanaged rangeland.

There are hundreds of thousands of "tanks" on our public lands. Tanks are those livestock mudwallows scraped into the earth by tractors. Many are called "wildlife watering tanks." Almost always these supposed wildlife watering holes are built primarily to spread livestock into the more ungrazed regions. Instead of helping wildlife, these tanks usually hurt wildlife by bringing the degradations of intensive grazing to areas that had little or no livestock grazing previously.

Manipulation of vegetative cover by various means has changed the very nature of the landscape on millions of acres. Stockmen and their government assistants

WHAT A DIFFERENCE A FENCE MAKES

Arizona state land.



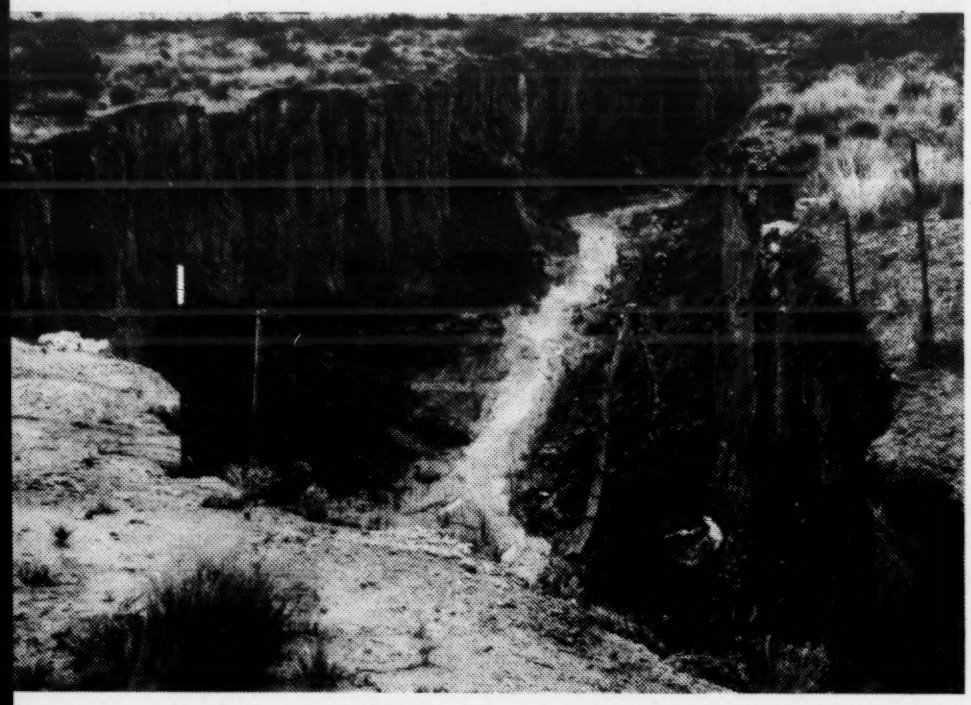
Livestock grazing as practiced here in Yavapai Co., Arizona, amounts to an annual clearcutting of forage.

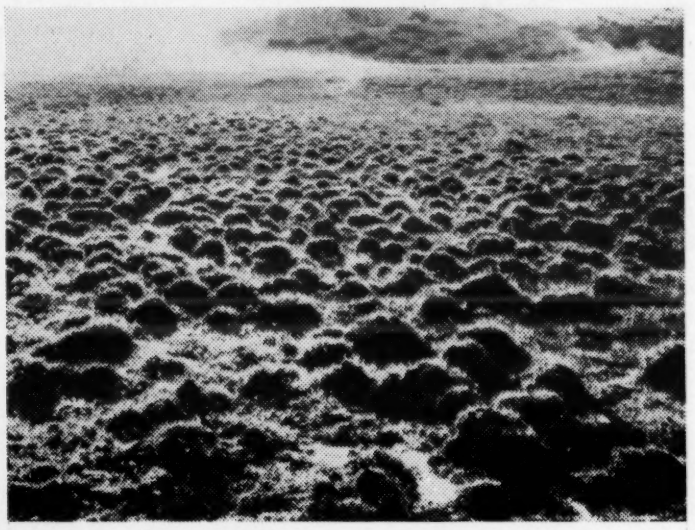
Wildlife refuge boundary fence in northern Nevada.

B.L.M., Cibola, New Mexico.

Roadside B.L.M., Grant Co., New Mexico.

Annihilated B.L.M. land south of Grants, Cibola Co., New Mexico.





(Left) cutbacks, relatively uncommon 150 years ago, are now seen all across the West. (Right) mounds and ruts created by cattle trampling a hot springs area in northern Nevada. John Muir called sheep and cattle "hooved locusts."

If the public lands grazing industry was disbanded and all ranching roads were closed, what would soon follow would probably be the largest environmental restoration project in the world.

destroy brush and trees that block sunlight and unforageble, or less forageble, vegetation by hundreds of thousands of acres at a time. Also eradicated are the more flammable kinds of plants, livestock-poisoning plants, plants that "may injure livestock and brush that may hide predatory animals."

Oftentimes, after vegetation removal or fire, an area is seeded by the government with an imported grass, usually crested wheatgrass from Asia (approximately 12.5 million acres of crested wheatgrass had been seeded by 1980). Though they usually result in more forage for livestock, seedings are expensive, unreliable, a disaster to the natural environment, and an impairment to human use and enjoyment of our public lands.

Predators occur naturally throughout the world and are necessary to a healthy, diverse ecosystem. They keep wildlife populations healthy by culling sick, weak, and otherwise inferior animals, helping check population explosions of many species that would otherwise become "pests," and removing carrion which might otherwise become health hazards. They provide esthetic enjoyment and scientific and symbolic meaning to humans. Predators also deserve to exist in their own right. The livestock industry itself is largely to blame for creating its own pests by killing off the predators that once kept their numbers in balance and drastically altering the native surroundings.

A "spring" (if you can call it that) on B.L.M. land in the White Pine Mountains of north central Nevada. Natural drinking water in the West has largely been degraded and polluted with parasites carried by livestock.

Overgrazing and range management have also made it necessary for stockmen to exterminate a variety of grazing and browsing animals, including deer, elk (especially), bighorn sheep, pronghorn antelope, and wild burros and horses. Competitor enemies are defined by stockmen as any animal that might eat profit-decreasing amounts of what cattle or sheep may eat.

What are the alternatives?

One of the more conservative suggestions is that the grazing fee be drastically increased to make it comparable to the cost of leasing private rangelands.

Another alternative is that B.L.M. and Forest Service lands be leased by competitive bidding, as are some Department of Defense, Bureau of Indian Affairs, state, and private lands.

But the most realistic solution to the problems caused by the public lands grazing industry is to permanently cancel all permits, remove all commercial livestock, and prohibit all future commercial grazing on public lands. Anything less is economically impractical, environmentally destructive, and politically irresponsible! ■

IF YOU ARE CONCERNED and would like to learn more about public lands grazing and what you can do to help, send for a free copy of the 48-page tabloid, "Free Our Public Lands," from which this article was condensed. Write Lynn Jacobs, Post Office Box 2203, Cottonwood, Arizona 86326.

Sacred Cows at the Public Trough

It is almost impossible to imagine the vast rangeland of the West without envisioning the Great American Cowboy riding his trusty horse into the sunset. But the enduring myth surrounding the nation's cattle industry has long been ready to be torn down, and ***Sacred Cows at the Public Trough*** *does the job with fire and conviction.*

Authors Denzel and Nancy Ferguson spent nearly a decade on this book. It is a powerful piece of investigative reporting that exposes the grave environmental destruction the cattle industry has wreaked on the arid West and documents the hundreds of millions of dollars spent subsidizing the arrogant cattlemen who have perpetuated the desertification of those lands for the past century.

Even more than that, ***Sacred Cows at the Public Trough*** *is a product of courage and devotion, a source of inspiration for all of us who at one time or another have finally had enough and want to do something about it.*

—Ken Conner

"RALPH, HOW MANY CATTLE CAN YOU FIT ON YOUR HALF OF THE ISLAND?"

•

Today, after the Forest Service has existed for more than 75 years and the BLM and its predecessor, the Grazing Service, for almost 50 years, one might justifiably expect significant improvements in the condition of the nation's rangelands. Yet in a 1975 report to the Senate Committee on Appropriations, the BLM admitted that only 17 percent (27.6 million acres) of its rangeland was in good or excellent condition — 50 percent (81.5 million acres) was in fair condition, 28 percent (45.6 million acres) in poor condition, and 5 percent (8.2 million acres) in bad condition. More importantly, only 19 percent (31 million acres) was improving, while 65 percent (105.9 million acres) was static, and 16 percent (25.7 million acres) was getting worse. Furthermore, soil erosion was severe, critical, or moderate on 68 million acres and slight on another 80 million acres. The report concluded that, "Public rangelands will continue to deteriorate; projections indicate that in 25 years productive capacity could decrease by as much as 25 percent. . ." After the report was issued, both the BLM and the U.S. General Accounting Office criticized the data for *understating* the poor and deteriorating state of the public rangeland. And despite such discouraging facts, both the BLM and the Forest Service have announced goals of doubling forage production!

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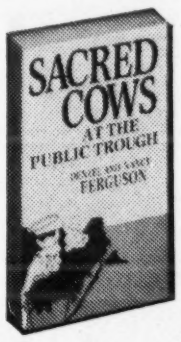
In 1977, eighty ranchers in Nevada were cited for 20,500 head of trespassing cattle, sheep, and horses on BLM lands, but were fined only $26,400 — considerably less than the cost of grazing the same animals legally for a month. Furthermore, BLM officials in Nevada believe that prosecuted cases are only the tip of the iceberg. Most trespassing goes undetected with as few as two or



Sacred Cows at the Public Trough
Denzel and Nancy Ferguson
1983; 250 pp.
$8.95 postpaid from:
Maverick Publications
Drawer 5007
Bend, OR 97708
or Whole Earth Access

three BLM employees overseeing as much as 4 million acres of rangeland. Nevada has more cases of trespass than any other state and accounts for about a fourth of all reported cases on BLM rangelands.

John J. Casey, a multimillionaire rancher and hotel owner who is known as the king of trespassers, has made a regular business of trespassing cattle and holds a 20-year record of illegal grazing in Nevada, California, and Montana. In just one area, near Susanville, California, in an 11-year period he was cited for 89 cases of trespassing in 140 incidents on BLM land. And largely to no avail, the federal government has spent more than $1 million prosecuting Casey for numerous trespass violations. When a judge asked him if he felt he had a trespass problem, Casey replied, "I feel I have been and am being picked on." Like Casey, many ranchers are aware of the impotency of the federal government in prosecuting cases of livestock trespass and are perfectly willing to risk the consequences, if any.

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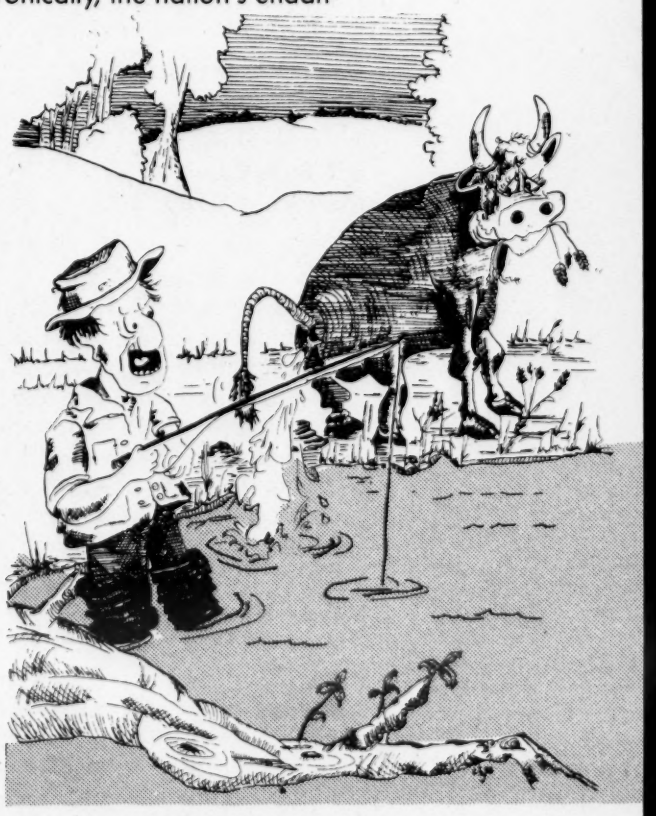
Much of the federal program of predator control has involved poisons, which did not permit an accurate accounting of what and how many animals were actually killed. Certainly the numbers would be impressive — even shocking. With other methods, however, predator control agents have kept a body count, at least of major animals killed. In one 34-year period (1937-70) the *known* number of animals killed by federal employees include 23,803 bears, 7,255 mountain lions, 477,104 bobcats and lynx, 2,823,056 coyotes, 50,283 red wolves, and 1,574 Lobo wolves. In this list of known kills, the total for red wolves represents only 28 years of effort, because after that, the red wolf, plus grey wolves, grizzly bears, and two forms of mountain lions had to be put on the *Endangered Species List*. Ironically, the nation's endangered species are also under the care of the Department of Interior, which handles predator control and prints the following notice on its publications: "As the Nation's principal conservation agency, the Department of Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and *wildlife*, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation . . . (italics ours)." What bureaucratic deceit!



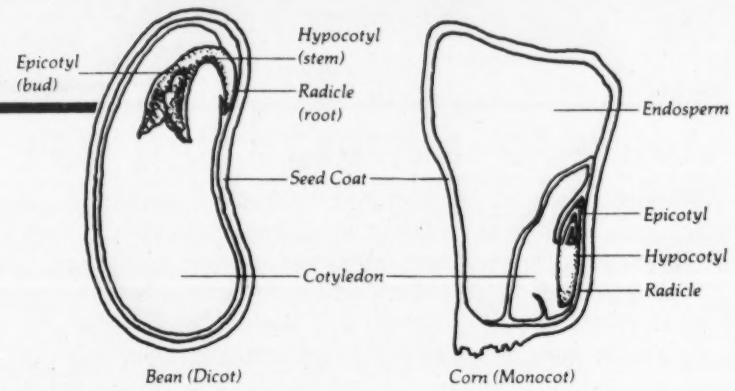
"THAT AIN'T THE KIND OF RENEWING THIS RESOURCE NEEDS ///"

Growing and Saving Vegetable Seeds

This is a book for beginners with a completely self-descriptive title. —*Richard Nilsen*

The late-bolting spinach plants should be saved for seed.

Growing and Saving Vegetable Seeds
Marc Rogers
1978; 140 pp.
$7.95
($9.95 postpaid) from:
Garden Way Publishing/
Storey Communications
Schoolhouse Road
Pownal, VT 05261



A seed and its many parts.

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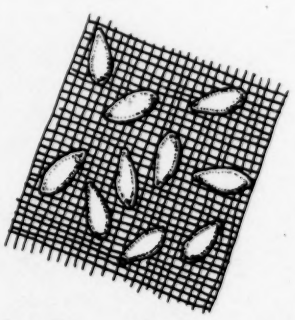
It is the *whole plant*, rather than an isolated individual fruit, that you should consider in making your selection. For example, in choosing a tomato plant, you would want to save seed from a vine that bore many excellent fruits, not simply from one lone huge fruit that caught your eye on the edge of the patch.

. . . If you intend to save seed from your vegetables each year, experts advise that you'd be wise to keep seeds from more than one plant of the same variety, even if you only need a few seeds, so that you maintain a broader genetic base for your garden improvement experiments. This is especially true of corn.



Place the mixture of cucumber seed and pulp in a bowl to ferment. Stir mixture several times daily to discourage mold. Pulp will become watery, and seeds to save will sink to the bottom. Dry on screen.

Raintree Nursery

All kinds of edible landscaping items that are often hard to find, from honey locust and hardy kiwi to black bamboo and Saskatoon Serviceberry. This catalog is a must for any gardener or woodlot owner in the Northwest. If you're outside that area, it's still good reading for new ideas, plants, and even recipes. —*Dick Fugett*

Raintree Nursery
Catalog **free** from:
Raintree Nursery
391 Butts Road
Morton, WA 98356

•

Hardy Kiwi: each $16.50
(Actinidia arguta) Delicious lime-green flesh, smooth skin, and hardiness to -40° F are some of the outstanding features of this newly introduced fruit. Native to northern China, the hardy kiwi is a fast growing vine that was originally brought to this country as an ornamental. Similar to the fuzzy kiwi in flavor and vigor, the plant and fruit are quite different in appearance. The fruit, leaves, and stems are free of hairs. The leaves are smaller and shiny green, and the fruit is smaller, round to oblong and about one inch across. It can be eaten skin and all like grapes, or used in the same ways as the fuzzy kiwi. They ripen in the Willamette Valley in September.

Cultural techniques are the same as for the fuzzy kiwi. Yields are reportedly quite high with mature vines producing over 100 lbs. of fruit. They are bothered by no pests or diseases in the Willamette Valley. As with the fuzzy kiwi, a male and female must be planted for pollination. The fuzzy kiwi male can pollinate the hardy kiwi, but with variable degrees of success.

Rincon-Vitova Insectaries

Mail-order bugs that eat bugs. They're called beneficial insects, and ladybugs are best known. Also for sale here are bugs to control aphids, greenhouse whiteflies, and even a parasite to attack common flies that breed in livestock manure. —*Richard Nilsen*

Rincon-Vitova Insectaries
Catalog **free** from:
Rincon-Vitova Insectaries
P. O. Box 95
Oak View, CA 93022

1. LACEWING

The green Lacewing is a truly voracious predator, attacking almost any soft-bodied insect that crosses its path. Although it is best known for eating aphids, it also feeds upon small worms, insect eggs, mites, immature whitefly, etc.

2. TRICHOGRAMMA

The trichogramma wasp is a tiny parasite that attacks the eggs of over 200 species of moths and butterflys. They are extremely small—4 or 5 of them could sit together on the head of a pin! Trichogramma are used in a variety of crops including corn, tomatoes, avocadoes, walnuts, apples and vegetables and ornamental gardens in general.

Mainline Rotary Tillers

Market gardeners, landscapers, or anyone who makes a living with a tiller will want to know about Mainline. This American company sells two kinds of high-quality Italian tillers made by S.E.P. and Goldoni. Thirty-three models are offered, ranging in horsepower from 5.7 to 18 and in price from $1,200 to $5,000. Some of the larger sizes are available in diesel. A key feature provides great versatility: the tiller comes off, revealing the power take-off spline; the handles and controls pivot 180 degrees so the power take-off is pointed forward, and attachments hook on. They include rotary lawn mowers, sickle-bar mowers, snow throwers, sprayer pumps, and log splitters.

—Richard Nilsen

Mainline with 44" sicklebar attachment. ►

Mainline Rotary Tillers
$1,200-$5,000
(33 models)
Information **free** from:
Mainline North America
P. O. Box 348
London, OH 43140

Craftseat

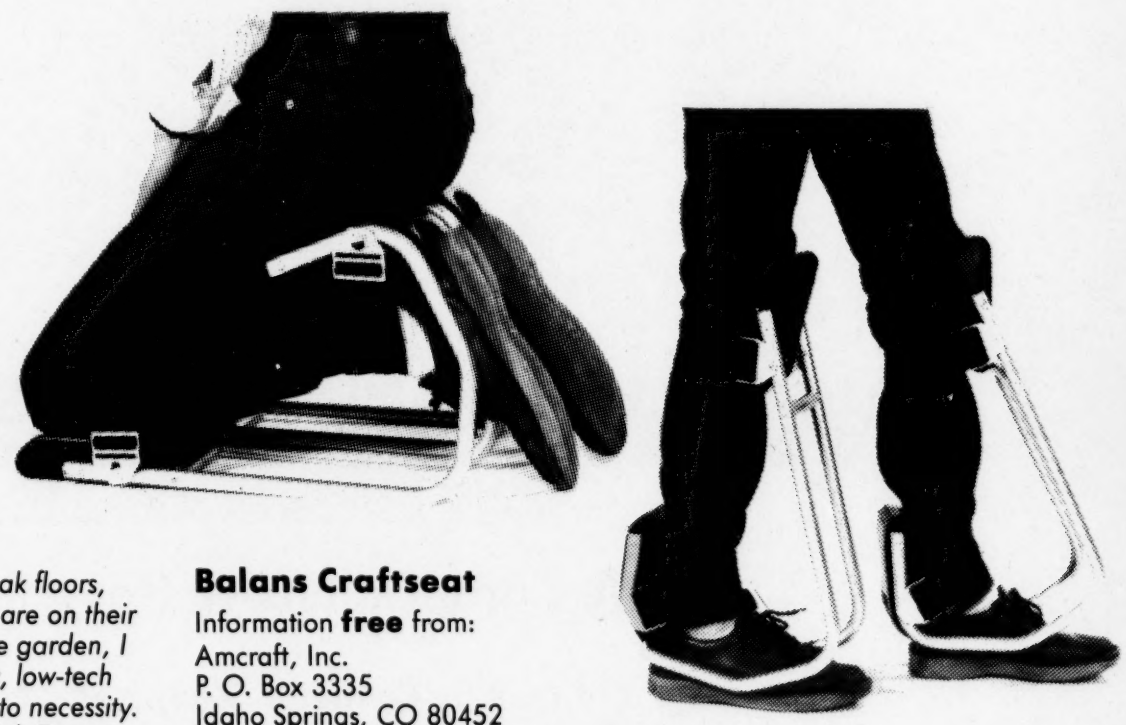
The Balans Craftseat is an offspring of the original Norwegian kneeling chair. This modification is actually two separate pieces, each of which attaches to a leg.

The merit of the device became apparent to me the first time I knelt down with them on. Instead of meeting a hard surface, my knees rest on pads. But better than mere padded knees is the absence of weight on them, or on my ankles, for the Craftseat puts my weight on my own padded butt, resting on two comfortable little seats. This lets me and my sensitive knees work close to the ground for long periods of time while remaining quite comfortable.

Since the Craftseat is attached to each leg, I can get up to walk around without moving a bench or a pad. This is not to say I'd wear the device to the fancy dress ball — the knocking of aluminum tubing is distracting, to say the least — but what's important is that it's possible to alternate kneeling and walking without making adjustments.

Based on recent memories of putting down oak floors, I'd say this unit is a godsend for people who are on their knees a lot, and for low-down puttering in the garden, I find it most helpful. It's one of those pleasant, low-tech items whose utility transforms it from gadget to necessity.

—Dick Fugett



Balans Craftseat
Information **free** from:
Amcraft, Inc.
P. O. Box 3335
Idaho Springs, CO 80452

Appropriate Technology Microfiche Reference Library

No less than 1,000 of the best appropriate-tech books and documents — about 140,000 pages — have been microfiched to fit into a small suitcase. A simple 120AC, 240AC, or 12-volt (vehicle battery) fiche reader accompanies this deluge of information. Instant library! Affordable, too; the price of all this is about five percent of the real books, not to mention the cost of shipping and storing them. More than 100 countries have partaken of this opportunity so far.

This powerful idea was hatched by Ken Darrow of VIA (Volunteers in Asia). He has a book coming out soon (but too late for our deadline) containing sharp reviews of all 1,000 of the fiched books. Watch for the ***Appropriate Technology Sourcebook*** *in late '86. If you work overseas, you need this book and the library. Spread the word.*

—J. Baldwin

Appropriate Technology Microfiche Reference Library
Information **free**

Library in case
$695
fiche reader
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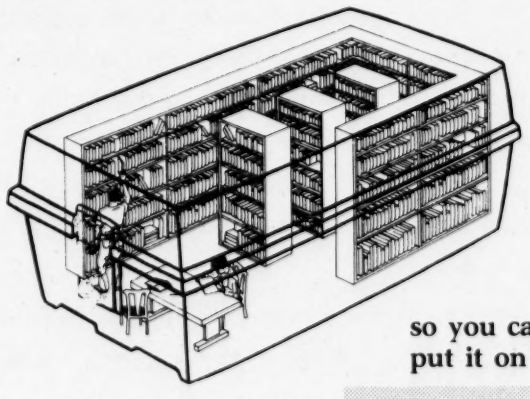

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TRASH WITHOUT GARBAGE

A Comprehensive Recycling System

Photos and text by Daniel L. Knapp and Mary Lou Van Deventer

GARBAGE is a modern invention.

For centuries, hunter-gatherers and farming folk left their discards near where they made them. Jews in ancient Jerusalem buried their disposables outside town and washed the streets daily. Mahenjo-Doro in the Indus Valley, 2500 B.C., had a town drainage system, and homes were equipped with built-in rubbish chutes and trash bins. But Athens was the first city to establish a municipal dump in 500 B.C. Rome initiated a municipal collection system, but only for state-sponsored events such as games and parades. Some days, up to 5000 bodies of gladiators, elephants and other animals were tossed into the pits at the edge of the city.

During the Renaissance, more rural people moved into towns. They brought their pigs which roamed freely and ate the garbage in the gutters. American colonists, like the Europeans, tossed their discards into the streets for animals and people to scavenge. Not everything was picked up. In addition, every

Like many experts who are too busy to write down what they know, Dan Knapp and Mary Lou Van Deventer have been giving slide shows about their model recycling system for years without publishing their results. Last summer someone at a conference taped their presentation, transcribed the tape, and handed it back to them. Thanks! Thus primed, they edited this article from its raw material (Mary Lou wrote the introduction and Dan did the captions). Their accomplishments are representative of a number of other municipal dumps around the country diverting wastes into resources.

—Kevin Kelly

horse contributed 20 pounds of manure daily. Towns and cities smelled. Industrialization brought more people to urban centers, but still no system existed for dealing with discards and sewage. Epidemics of cholera and yellow fever decimated the population. By 1870, infant mortality in New York was higher than in 1810. In 1873, yellow fever killed 10 percent of the population of Memphis. Philadelphia was hit even harder.

Modern management of discarded materials began in the 1880s when, for the first time, municipalities took responsibility for what had always been a personal chore. By the 1890s, more than half of America's cities utilized some system of collection and disposal. The three usual categories of refuse were ashes, food, and dry rubbish. The food was fed to hogs on farms, the ashes filled "unhealthy" swamps and potholes in roads, and dry rubbish was sorted for valuables. Rags and paper made more paper, metals went back into production, reusable goods were sold. Some discarded food was cooked and pressed for grease, the dried leftovers used as fertilizer. These products, processed and recycled in separate manners, were undergoing what today we call "source separation."

Garbage was invented in the 1930s. Food scraps, rags and paper were mixed together and carted to an incinerator. As the variety of the mixed waste increased, it became increasingly difficult to process the mess in any other way except high-temperature zapping.

Refuse collectors preferred mixed materials collection for incineration because it was cheaper. Mixed wastes could be picked up weekly, whereas separated food scraps had to be collected several times a week. Rubbish and ashes were hauled at much longer intervals, from twice a month to a few times a year. The newly invented compactor trucks increased the efficiency of mixed collection. Within a decade, the entire country embraced mixed collection and abandoned source separation along with the recycling systems it supported.

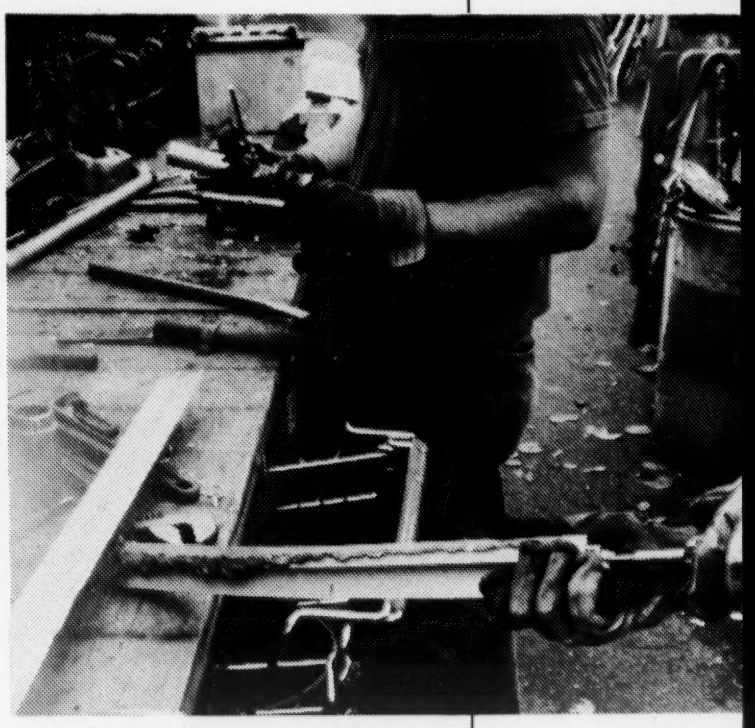
In the 1940s, sanitary landfills proliferated because of the Army's success with them during World War II. People found them tidy. They merged easily with mixed collection. They made garbage universal. With the explosion of consumer products in the 1950s, disposability became the new resource ethic. Many collection companies forbade their employees to scavenge. By the 1970s, 5 pounds of garbage per capita were discarded daily compared to 2.7 pounds in the 1920s. Garbage companies became multinational corporations.

In the 1980s, when the public began to realize that congested landfills were polluting drinking water and soil with toxic substances, recycling came back into its own. Following the State of New Jersey's lead, Chicago and New York set recycling goals of 25 percent. Other cities such as Berkeley and Portland aim at recycling 50 percent of their waste.

Many expensive attempts have been made to recycle garbage after it has left the compactor trucks. None of these really work, because it is like trying to unscramble scrambled eggs. The streams of garbage flowing down conveyor lines is a system designed for incinerators, not for recycling. □

Lane County's pit design transfer station. Resources go in, garbage comes out.

My personal involvement with recycling began in Eugene, Oregon, at Lane County's garbage transfer station. Like most other transfer stations, Lane County's utilized the pit design, a hole 15 to 20 feet deep with vertical concrete walls. It makes recovering anything useful next to impossible. Huge machines run back and forth smashing and mixing everything before pushing the mix to discharge chutes at the end of the building. Tractor trailers that carry up to 120 cubic yards transfer this messy stuff to a sanitary landfill in the countryside. Lane County is lucky to have its landfill only 13 miles away; other communities such as San Francisco must haul garbage over 60 miles to rural dumps.



► "Highgrading" metals using hand tools. Our recycling system was built on this type of labor-intensive sorting.

I helped design a metals recovery project that became a prototype for what we later developed in Berkeley on a much larger scale. It doubled the recovery rate and more than tripled metals scrap income by making a few simple, low-cost additions to the existing disposal system. A new job was created for a person to sort metals into broad categories, using hand tools to create clean piles of copper, aluminum, lead, brass and steel. These metals were further sorted into 20 subcategories according to scrap metal buyers' specifications. Each separation brought in more money. Prior to this innovation, all metals had been jumbled together in the same bin and sold as mixed metals at a very low price.

The new recycling option we created worked in contrast to a nearby mechanized "resource recovery" plant built at a cost of many millions of dollars to do the same thing we were doing. But it was capable of only the grossest separations, creating either ferrous, burnable or unrecyclable fractions. The plant merely produced modified forms of garbage, one with a high iron content, the other with a high percentage of burnables. Neither was clean enough to be sold, so both were landfilled. In effect, the plant was making garbage out of potentially recyclable wastes.

◄ **A load of flooring being dumped that would have sold for a few hundred dollars if salvaged.**

Urban Ore, one of Berkeley's recycling companies, was started in 1980 with no funding from outside sources. All we had for capital was the waste itself. It was being hauled to a landfill then classified as an open dump, which meant that garbage was not covered with dirt at the end of each operating day. Conditions were unbelievably primitive when we started. To create a work space, I had to move a massive, rat-infested pile of tires. To recover anything, the salvage crew either had to convince disposal customers to drop off their recyclables or, more often, climb into the pit and haul things out by brute force. Heavy items were nearly impossible to recover. Large numbers of small items also caused problems. We worked against time and gravity, salvaging what we could under a cascade of garbage. Although we spotted valuable materials constantly, we concentrated on what could be sold immediately such as nonferrous scrap and reusable goods. Everything else just slid by and was buried by the antiquated tractor that scooped out the pit several times a day.

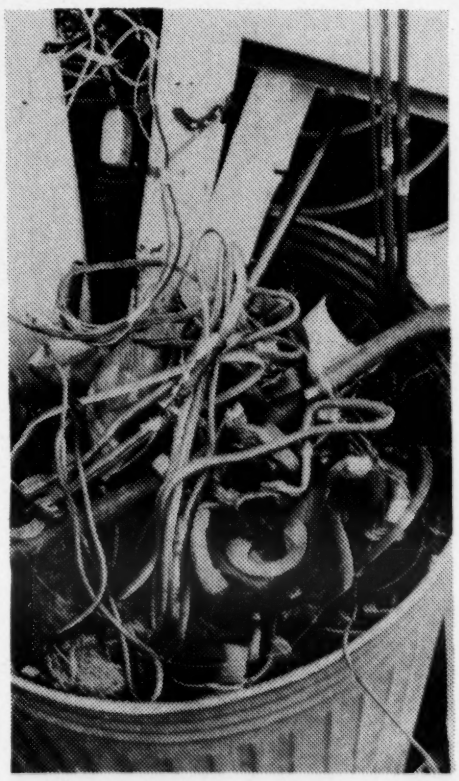
Five years later, Urban Ore grossed over $600,000 in fiscal 1985, operating from three locations including Berkeley's new refuse transfer station. There are two other recycling businesses in Berkeley as well, each of which could tell its own story of growth from very humble beginnings. They handle the traditional recyclables — cans, bottles, cardboard, and paper — and their gross income is over $1 million per year. Recycling has become a rather large enterprise.

▲ **Cleaned aluminum scrap.**

When I salvaged within the tipping area, I always carried a canvas bag containing screwdrivers, cutters, an adjustable wrench or vise-grips. With these I could dismantle many items and clean metals right on the spot. This increased productivity and income. For example, to receive the highest price for scrap aluminum, certain contaminants such as sheet steel metal screws, rubber and plastic weather seals had to be removed. Copper could be found in plumbing and electrical applications where the contaminants were likely to be iron, steel, or plastics. Old cast iron sewer pipe was a good source of lead. Breaking the brittle iron to release the lead greatly increased the price paid for the recovered weight. Hammers, chisels, crowbars, screwdrivers, pliers and visegrips were the basic tools for this kind of "mining." Long-handled cutters proved a most versatile and useful tool.

▲ **Compactor/tractor clearing the area.**

Within a few months of start-up, we convinced dump management to fill in the pit and tip the garbage onto flat ground. One reason they agreed to do this was to reduce their liability: people's cars and trucks kept falling in. A tipping area 400 feet wide and 100 feet deep was created. Now we had a much easier time getting to the materials, although the footing was treacherous. As loads were dumped, we would pick through it. Then a compactor with steel teeth on its enormous wheels pushed everything we left behind to one side and the cycle began anew. A tipping area would be used for a few months, and then another one would be built in another area of the landfill.



◄ **Cleaned copper scrap.**

With simple hand tools, our salvage crews were able to raise the value of scrap metals from less than a cent a pound, uncleaned and mixed, to highs of $ .25 to $ .35 a pound. Not everything was that valuable, but the cleaning process, which we called "highgrading," was the basis for virtually all of our later expansion. In fact, it funded our compost recycling system.

▼ **The lawnmower: if it runs, somebody will buy it.**

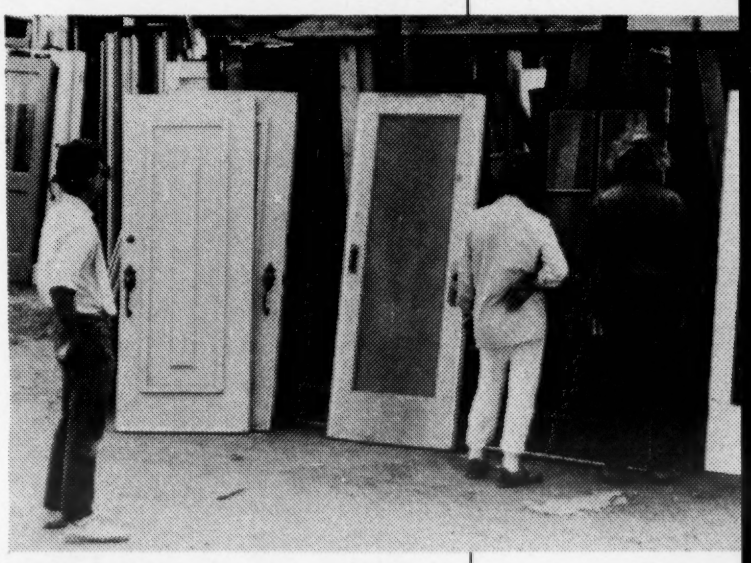
The other fundamental part of successful operation is selling for reuse whenever possible. Take a gas-powered lawn mower, for example. You can throw it into a mixed metal bin and it will bring about $20 per ton, or less than a dollar. But if you have a reuse sales area, it will definitely pay to see if the motor turns over by pulling the starter cord. If it does, it should be worth a minimum of $5 and it may be worth up to $25. This principle works across a broad range of materials. Almost anything can be resold. I recently experimented with selling live plants taken directly from the tipping area at the compost facility. They included bulbs and tubers such as irises, freesias and gladiolas; or hardy plants with water-holding leaves like cacti and succulents. All sold for good prices within a few days after being placed in the salvage sales area. Alternatively, they could have been "scrapped" by running them through the tub grinder and turning them into compost. But the monetary return would have been lower. Urban Ore was built upon a foundation of intelligent discriminations such as these.

▲ **Prices are a product of experience, negotiation, and a lot of plain guesswork.**

Rough price ranges become known and acknowledged for each category. I like to call our markets "handshake" markets because, unlike the regular recycling trade in which materials are sold to buyers thousands of miles away, your buyer is right there and the two of you set the price.

► **Construction materials at the Flea Market site.**

Virtually anything created by humans will ultimately show up at a landfill. Doors, windows, sinks, toilets, bathtubs, lumber, and lighting fixtures are delivered regularly to landfills by independent contractors who remodel and renovate existing structures. In most urbanized areas, remodeling and renovation are more common than new construction. Nearly all remodeling is preceded by a tear-out phase, which generates these materials. Gradually we discovered that building materials did not sell well at the dump site. So we moved this large category of reusable goods to a more commercial area. We began buying salvaged materials delivered to that spot in a clean, reusable condition. You could say that we moved the waste stream closer to its source. Often the same construction crews that dumped building refuse needed particular used materials for restoration. Thus materials that formerly went to the landfill could now be disposed of in a better way.



► **The door department draws many customers. Doors go for $25 to $100.**

The simple category of doors, for example, is subdivided into more than a dozen subcategories such as single- and multi-light doors, entry doors, panel doors, solid and hollowcore doors, and more. Windows show similar complexity. Arranging these materials neatly by size insures successful marketing. As in high-grading, there is a direct correlation between the number of subcategories for each major materials grouping and achievable income.

Today the building-materials recycling facility occupies about an acre of commercial property, and the annual gross is more than $200,000. It buys about 80 percent of the goods it sells; the other 20 percent comes through donation or dropoff. Surplus revenue generated from this operation and the flea market were the main source of financing for Urban Ore's compost venture.

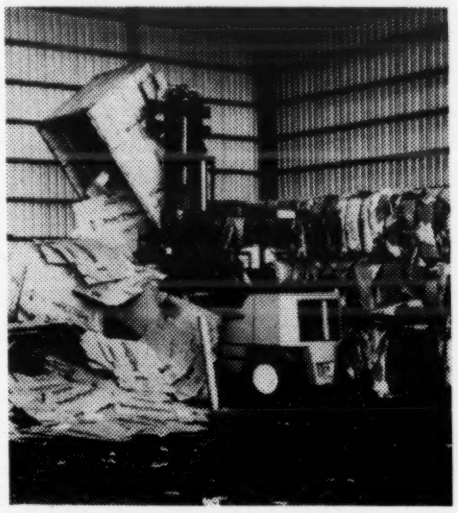
▲ **Berkeley's Solid Waste Transfer Station before it opened in 1982. The empty area in the background was to have housed the burner which was never built. Instead it became the site of the Flea Market.**

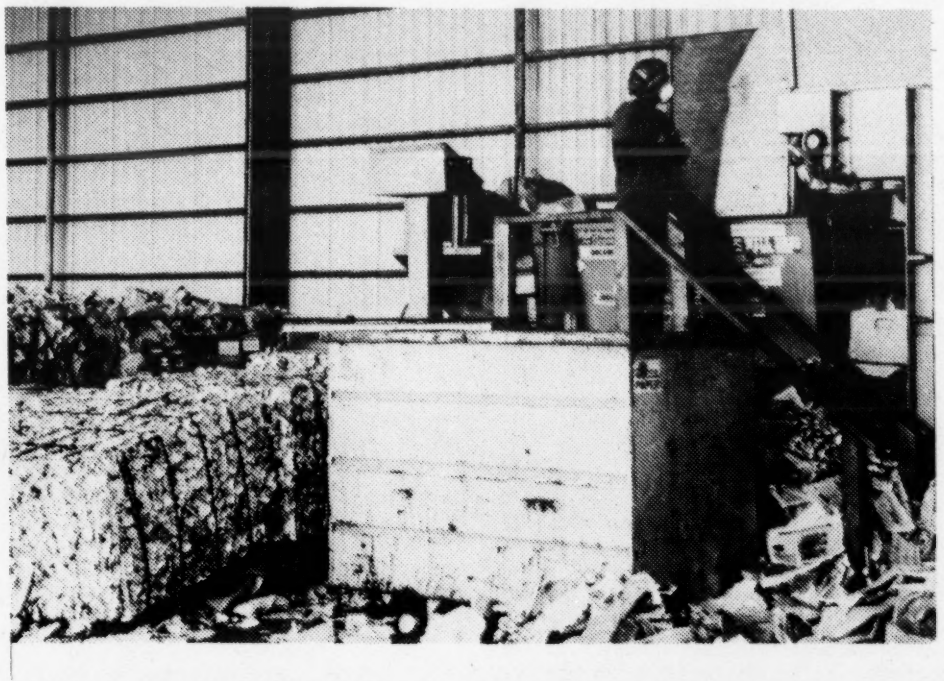
The city of Berkeley had opted to build a garbage burner instead of committing funds to materials recovery. But substantial opposition developed to the garbage burner, and in the 1982 elections an initiative passed with more than 60 percent of the popular vote.

Our flea market went through a major transformation at this point. In fact, all of Berkeley's recycling companies benefitted from the pause in the city's headlong rush to incinerate solid waste. Between 1982 and the present, Berkeley's refuse transfer station (where garbage is transferred to large trucks and hauled to a landfill 45 miles away) has been drastically altered into a refuse and recycling transfer station. Recycling occurs first before refuse is made into garbage. This gives people who want to recycle a chance to do so conveniently; their minimum reward is a reduction in volume or weight for their discards, which translates into a lower disposal fee. In many cases, they earn some money for their trouble. At the end of the line, where the garbage is dumped, both the city and Urban Ore employ salvagers to recover recyclables, a last chance to mine the urban material.

▲ **Computerized weighing scales.**
► **Proof positive that recycling pays off.**

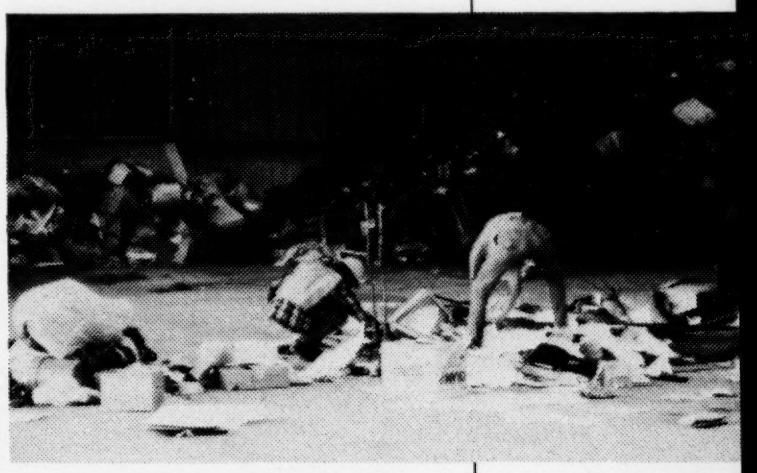
First in the recycling line-up is a modern buyback facility for recovering container metals and glass, paper, and cardboard. People disposing of these materials queue up in their vehicles and wait for their turn at the scales. Then they unload the separated materials onto the appropriate scaling equipment. Weights are recorded and fed into a computer. When each transaction is finished, a check is printed automatically at the office and given to the customer. For those not wishing to use these streamlined procedures in return for pay, there is a dropoff facility on the same lot for the same materials. The dropoff area also takes used oil and larger scrap metal items.





►**The baler being operated by a properly attired worker. Aluminum scrap is being rejected at the bottom of the machine.**
▲ **Baled paper scrap loaded for transfer. The baling allows the product to be sold to worldwide markets.**

The mechanical heart of materials processing is a large baler capable of producing export bales of paper, cardboard, steel and aluminum cans, and light aluminum scrap. Glass is sold color-sorted. A scale that weighs container metals incorporates a magnet to sort ferrous from nonferrous cans. This same processing plant is also the unloading terminal for the monthly curbside collection run by Berkeley's Ecology Center, one of the oldest recycling firms in the nation.



▲ **Two Urban Ore employees separating materials. Garbage for landfill in the background.**

City workers remove salvaged materials to bins outside the building. Urban Ore workers use a pickup truck with a lumber rack, or an old, reliable bread truck.

All salvage workers are expected to wear protective clothing — dayglow vests, hardhats, hardsole boots, gloves and dust masks when conditions warrant. Materials that escape recycling options are sent to the landfill as mixed garbage.

▲ **Firewood, one of the main products of the compost facility. A hydraulic splitter is used to split the rounds. An urban forest product.**

The largest single part of Berkeley's comprehensive recycling system is the compost facility Urban Ore pioneered. At $6 a load, the compost facility is cheaper than the nearby landfill transfer station.

Disposal customers stop at a fee gate, the load is inspected, the volume estimated, and a fee assessed and collected. Grossly contaminated loads containing trash, rock or metal are rejected at the fee gate, and the customer is directed to the landfill or transfer station. Tipping is monitored by site workers, and contamination is removed to a dumpster.

Compacting green brush by piling it up is enough to start vigorous composting action immediately. Shredding is not necessary for composting, although it speeds up the process. Whenever we break into a stacked pile of brush with the loader, great billowing clouds of steam puff out, a sure indicator of rapid decomposition. Given enough water, large brushpiles produce finely decomposed humus from fallen leaves and twigs within a few months, while large branches may take two years. But a shredder allows the process to be accelerated, and the size reduction means using less space for storage.

► **Unshredded plant debris will compost without shredding. Plant debris makes up a quarter to a third of urban waste, a fact engineers usually do not consider because they don't count privately delivered waste.**

▲ **The hammermill assembly in the tub grinder is feeding shredded material onto the conveyer.**

We used a tub hammermill or "hammer hog" for bulk reductions. Our compost crew quickly found that the machine required a lot of maintenance. The 48 hammers, each weighing 9 pounds, wear down quickly. A key discovery was that allowing the brush to dry for several weeks made easier work for the grinder. Oddly enough, green leaves abrade the hammers faster than kiln-dried hardwood. We learned that tub grinders for grinding wood pallets routinely get 200 hours from a set of hammers, while those used in leaf-composting operations get as little as 6.

After grinding, the pulverized wood material is taken to elongated piles called windrows. These windrows are then watered and turned periodically. Temperatures rise quickly to 160 degrees and remain high for weeks. The color gradually changes from greenish brown to golden to chocolate brown and, finally, to nearly black.

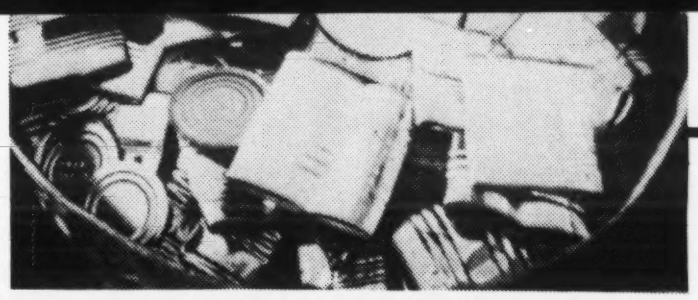
The product can be sold for different uses at any stage in the process. In the early stages, it is useful as mulch. Older windrows showed greatly increased proportions of fine material. Even after the compost is uniformly black, which takes six months to a year, it still contains some sticks and larger particles. We found the most popular form of compost was produced by putting this black compost through a mechanical screen. The fine material produced sold very well at $18 a yard in small quantities. In bulk, its value was around $11.

► **Screened plant compost, the final product of the Compost Facility, which sells for $15 to $18 a cubic yard.**

A final point about how Urban Ore's compost operation was financed. Composting is machine-intensive, while salvage is labor-intensive. That labor-heavy salvage could actually finance hardware-heavy composting demonstrates the truth of a discovery I made 20 years ago when writing my master's thesis on comparative economic development. I was then very impressed with the way countries like China, with huge populations and little capital, were organizing their labor to be the major engine powering economic growth. The lesson I learned was that well-organized, labor-intensive production systems can be a major source of surplus value — call it profit if you like — which can then be used to purchase the capital equipment necessary for further expansion. Urban Ore has demonstrated that this principle works even in a high-technology state like California. We used surplus value created by a business where the labor, skill and knowledge were the productive factors, and built a much more capital-intensive business separate from but complementary to the others.

Berkeley was one of the points of origin of the modern recycling movement. Experimental recycling depots were created here as early as 1967, three years prior to Earth Day in 1970. Recycling is now being integrated into the much larger refuse disposal system. The reasons for this combination are primarily economic, as mixed waste disposal rapidly prices itself out of the market. Recycling even low-price commodities such as plant discards has become the cheapest way to get rid of them. The fees a consumer must pay to dispose of his refuse are paid to recyclers and, combined with the revenue from selling materials, this creates a new economic underpinning that is propelling the recycling industry into prominence as the preferred waste disposal option. Even large urban garbage collection companies are being compelled to recycle in order to decrease the amount of material they must haul long distances to faraway landfills.

To dispose of the refuse we make, without making garbage, requires an organizing intelligence. The *Oxford Dictionary of the English Language* — a copy of which I appropriately found in the garbage — lists "orderly placement" as one of the definitions of the word "disposal." American dictionaries, in contrast, tend to associate the word with garbage. In fact, the word "disposal" has been taken over by the solid waste management industry and used so much in conjunction with garbage and waste that its definition as orderly placement has virtually disappeared except in restricted contexts, such as "disposal of a relative's estate" or "disposal of a company's assets." But if you were the executor of a relative's estate, you wouldn't dig a hole and bury everything, nor would you pile it up and burn it. You would catalogue, separate and give it away piece by piece. This kind of disposal is truly orderly placement. Garbage disposal has had its day; recycling disposal is on its way. ■



Many community recycling programs collect tin cans. Participants are asked to rinse the cans, remove labels and flatten them. Resistance to these preparations is one of several factors affecting the tin can recycling rate. ***—Resource Recycling***

Recycling Magazines

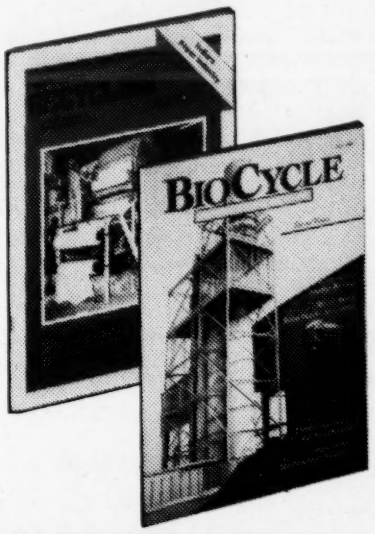
BioCycle *is close to my feces-fertilizer-farm-food-feces revolving vision. It features my favorite Compost Guru, Clarence Golueke. I once thought their bumper sticker should read: ''Have You Hugged Your Humus Today?'' Herein, the creators of America's long-term wealth.*

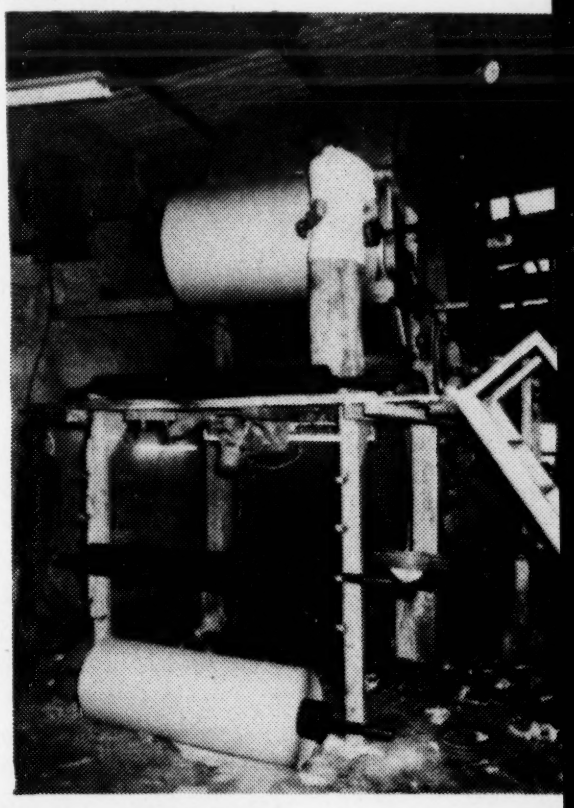
Resource Recycling *focuses more on heavy metal; if they could, the editors would probably mine old landfills. For the moment, the magazine works closely with industrial producers exploring ways for the consumer and companies to both profit by reuse and waste reduction.*

—Peter Warshall

BioCycle
Jerome Goldstein, Editor
$43/year
(10 issues) from:
BioCycle
Box 351
Emmaus, PA 18049

Resource Recyling
Jerry Powell, Editor
$20/year
(7 issues) from:
Resource Recycling
P. O. Box 10540
Portland, OR 97210





The Brahmani Paper Mill makes ten metric tons per day of machine glazed ribbed and plain kraft paper. These products are used in paper bags and corrugated boxes. The mill, located in Ghaziabad about 20 miles from New Delhi, buys waste paper as furnish. ***—Resource Recycling***

Waste to Wealth

This is the most exciting of many publications from the Institute for Local Self-Reliance. Taxpayers pay $10 billion a year for waste disposal — not counting the costs of cleaning up leaky landfills. ***Waste to Wealth*** *defends the 100 percent pollution-free alternative of finding ways to re-use garbage. Ground-up old tires (crumb rubber) become rubber products once again; recycled scrap plastic becomes virgin plastic for another loop of consumer use; discarded industrial oils fuel homes.*

—Peter Warshall

•

Scrap Tire Collection and Transfer

Tires are usually collected for a fee by junk dealers, recappers, and municipal waste collectors and then disposed at the local landfill. Recycling offers savings from disposal costs, but the crumb rubber manufacturing plant (CRMP) must take into account the cost of collection which is a major expense. While any variety of collection schemes can exist, it is probably best to (1) allow generators to collect and tip their scrap rubber at a set cost per tire at the CRMP or (2) levy a larger charge to pay for collection costs. For purposes of calculation, we will assume a charge for tipping at the CRMP; and that the CRMP does not have any collection equipment. Further, local market conditions will determine the charge per accepted tire.

•

Axiom #1: Scrap is bought, not sold. The end-users control the economic viability of recycling. Carefully research your particular market, learn the terminology, understand the specifications and trends, and learn where scrap is found and sold.

Axiom #2: As the cost of waste disposal increases, the economic viability of recycling increases. The special handling costs of keeping materials segregated for recycling may seem discouraging to the generator in view of the low prices for which they can be sold, but such efforts begin to be viewed as more worthwhile when the alternative, the cost of disposal, is factored in.

Axiom #3: Scrap is almost invariably used in manufacturing products that are less valuable than the original product. When recycled, it usually does not approach its original market value as raw material or product. For example, most wastepapers cannot replace virgin pulp in quality paper production; they are used to make construction or packaging materials, or lower grade papers such as newspaper. Most ''tin'' cans are not recycled to make into new cans, they are melted down with other lower grades of steel to make construction materials, or used to help precipitate copper from ore. Crumb rubber is not used to make new tires, it can be used as a road aggregate, or additive to asphalt.

Waste to Wealth
Jon Huls and
Neil Seldman
1985; 109 pp.
$35
($36.50 postpaid) from:
ILSR
2425 18th Street NW
Washington, DC 20009

Glass bottles have generally been the exception to this rule, because they can be melted and recycled back into new bottles; but there is a potentially larger market emerging for using bottles to make fiberglass. A greater amount of glass may eventually be sold for this purpose, even though prices paid by the fiberglass manufacturers are much lower.

Axiom #4: Scrap must be uncontaminated. Because a load of material takes on the value of its least valuable component, separation by manual or mechanical means is necessary to obtain the maximum value of each material in the load.

Axiom #5: Recycling profits rely heavily on logistical considerations. Materials must be aggregated in large volumes, in convenient location, on a regular basis. For example, an apartment building with 500 residents may generate three tons of waste paper a week, but the economics of recycling that paper depend on the willingness of the residents to consistently separate the paper, and the cost of collecting and transporting the material to a particular market.

Urban Tree Planting Politics

by Tom Wilbur

Ingham County Commissioner, District 7 — East Lansing, Michigan

OVER THE PAST SEVERAL years I have been involved in ''re-foresting'' as much of my local community as possible. Thus I was interested in your article on ''Resurrecting Elms'' (*WER* #51, p. 38). Although I have no forestry training and little technical knowledge of trees, I do have five suggestions about the politics of tree planting:

• There is much territorial overlap in local government. One should approach many politicians, agencies, etc. with inexpensive tree suggestions rather than one with a large (and, therefore, difficult) request. As an example, I have worked with our county, two adjoining cities, a township, two school districts, a state legislator, two state departments, a university, a hospital, and others.

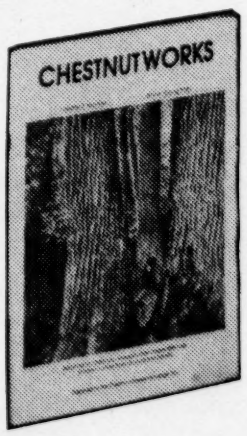
• It is better to suggest that an agency plant small — rather than large — trees. Large ones are very expensive to purchase and difficult to plant. Their cost/tree ratio will quickly discourage most pols. My guiding principle: get as many trees in the ground as possible — eventually most will get large (some will get sick, be run over by trucks, bulldozed for a shopping center, chopped down by kids, etc.). Note: some commercial nurseries will work to get pols to buy the biggest trees possible. This makes more money for them. It also lets them use their tree spades and other expensive equipment.

• Urge that a variety of trees be used in any planting. This insures that a single disease won't wipe out an entire neighborhood or other planting. Many local pols remember what happened to the elms. Tree species variety also assists a richer, more varied ecology.

• Many municipalities wait until you call about a vacant street-tree space. Then staff come out and plant a single tree for you. It is more efficient to divide your city (township, county, etc.) into zones. Then have crews go through a zone and put a new, small tree in every vacancy. This will get ten or fifteen times as many trees in the ground as doing it one-at-a-time for people who request them one-at-a-time. This is especially important in communities that have neglected street trees for some years and have many vacancies.

• Civic groups will often adopt a park, school, or other area and have it planted. Your local pols will be very appreciative of volunteer efforts. It shows them that people (their constituents) really want trees.

I have found my fellow pols to be very supportive of *affordable* tree plantings. New trees are something tangible and popular. ■



Chestnutworks
R. D. Wallace, Editor
$10/year
(2 issues) from:
Chestnut Growers Exchange
P. O. Box 12632
Portland, OR 97212

European chestnut orchard tree near Stockton, California.

Chestnutworks

Imagine life without oak or apple trees, and you'll have some idea of what the loss of chestnut trees has meant. A lot of promising research has been done in the last decade to heal the chestnut of its blight, and there is accelerating interest in restoring this towering tree's role in the American landscape. You can take part in this noble resurrection via this informative newsletter. It lists nurseries that sell chestnut saplings, including blight-resistant hybrid grafts and seedlings. —*Kevin Kelly*

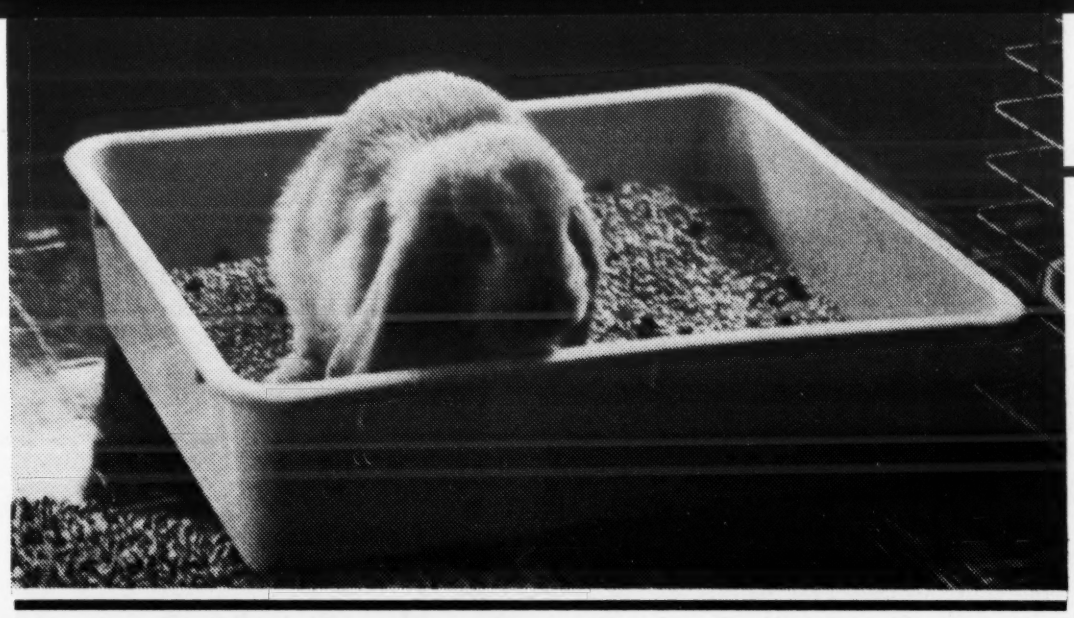
•

[In nutritional makeup] a fresh chestnut is superior to brown rice. The chestnut has twice the protein and carbohydrate, with water making up the difference.

Chestnuts have another major advantage over brown rice, one that is especially important for those concerned with the health of their heart and cardiovascular system. A chestnut has almost no sodium.

•

One of the most important developments has been the pioneering work of Dr. Charles R. Burnham, Professor Emeritus of Genetics at the University of Minnesota, and Phillip Rutter, Nurseryman and President of the American Chestnut Foundation. This work in chestnut genetics has made the production of a timber-type American chestnut tree with blight resistance a theoretical possibility. This is becoming closer to reality through the use of successive backcross breeding techniques. With the second backcross generation now in the ground and growing, it may be sooner than previously thought until such a desirable tree is produced.



House Rabbit Handbook
Marinell Harriman
1985; 108 pp.
$5.95
postpaid from:
Drollery Press
1615 Encinal Avenue
Alameda, CA 94501
or Whole Earth Access

House Rabbit Handbook

Rabbits make great pets. This book introduces you to 20 pet rabbits and their owners, revealing personalities, offering advice, and exposing humor and bad habits. Having a pet rabbit requires a certain degree of bunny-proofing, for instance, or your furniture could end up in shreds. Harriman, who has lived with rabbits, shares a sensible, realistic knowledge that will enable you to appreciate the difficulties and joys of owning an urban rabbit.

—Beverly Lowe

•

If you want to add a pet without the complications of mating or fighting, a good choice is a companion of another species. There are a number of combinations that work well, but the most common mix is a rabbit with a cat. You can raise them together or introduce a youngster later. It doesn't matter which comes first. You can give a kitten to a fully grown rabbit or a baby bunny to a fully grown cat. Obviously, this last choice would take more caution and would be impossible if your cat hunts larger game than mice.

•

The best behaved house rabbits are the ones that will sit for long periods of time on the litter box (or in the cage) and try to get everything done at once. They often take care of their grooming at the same time. Having a rabbit like this is largely due to luck, but you can do a few things to encourage this habit: (1) make the litter box a pleasant place and don't use it for punishment, (2) praise and pet him when he's done well, (3) maintain a fairly regular feeding and snack routine, and (4) keep stray pills picked up so as not to encourage more.

In all honesty I have to admit that some house rabbits can be toilet trained better than others. But you don't have to throw out a less trainable rabbit. You can observe his "cycle," or the times of day he scatters pills about. You can keep him confined during these times, or you can stand by with the whisk broom. Sweep-up is unlikely to be needed more than twice a day (unless you're expecting company).

•

Thumping is supposed to be a danger signal. It can be confusing to human house mates, who don't see any cause for alarm, and it can be particularly annoying to be warned of "danger" throughout the night.

Caring for Your Pet Bird
Dr. R. Dean Axelson
1981; 168 pp.
$6.95
($8.45 postpaid) from:
Sterling Publishing Co.
2 Park Avenue
New York, NY 10016
or Whole Earth Access

Caring for Your Pet Bird

Pet birds are not ornamentation. They're companions. Which means you need to know how to maintain their health, recognize problems, and develop a rapport. It means caring. Whether you bought your bird from the pet store or found it injured by the roadside, Axelson will help you keep it chipper. *—Cindy Craig*

•

Ripe fruits and vegetables should not consist of more than 25% of the bird's total diet, and everything should be thoroughly washed to remove all traces of insecticide. Here is a good rule of thumb: any fruit, vegetable or green that you can eat, your bird can also eat, quite safely.

•

Birds are very sensitive to pollutants in the air. It is unwise to keep your bird in an area that is heavily polluted by cigarette or cigar smoke, gas and cooking fumes, or heavy dust in the air. Even the fumes given off by burning or overheated teflon pans, although not toxic to humans, can be toxic to birds.

► **In an emergency, keep the bird warm.**

Initially, you may have to wear protective gloves when training your bird.

Listen to Your Pain

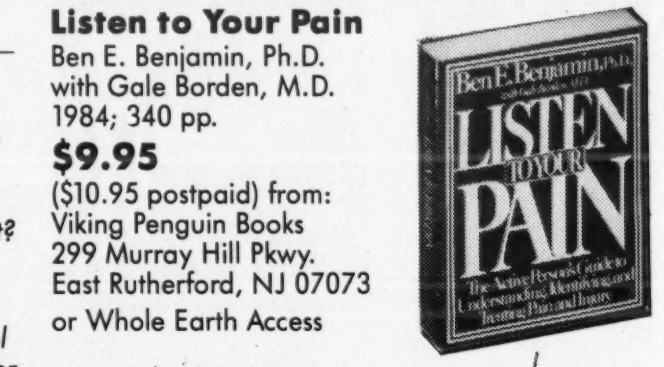
Every blessing has its price, and for the rewards of sport there are injuries. Whether you call them counterblessings, learning experiences, or just agony and frustration depends on your philosophical system. But when it gets down to physiology, all systems are similar, and so is our first question — what's wrong, and what can I do about it?

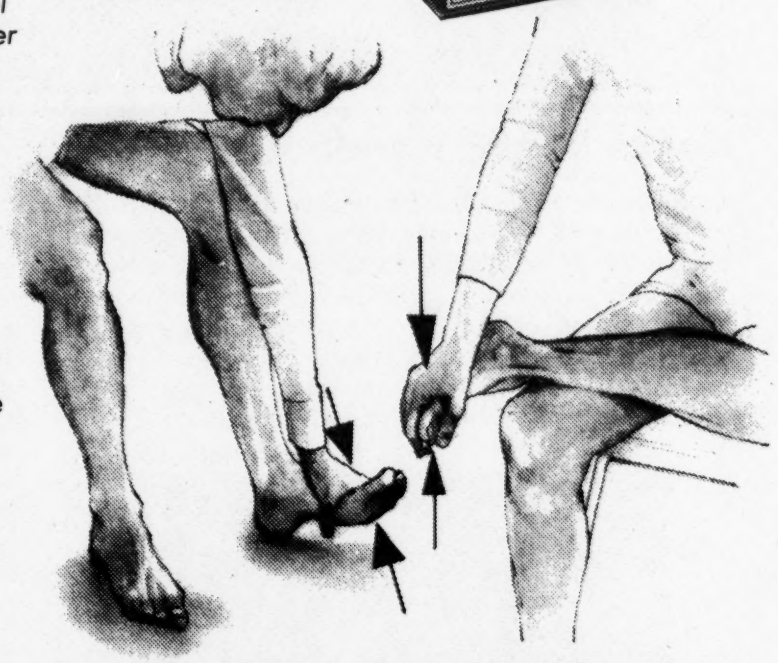
Listen to Your Pain *explains basic body structure and general causes of injury. Where it excels is in the very practical, how-to-find-it sections. Each section has a label like "Chin-up Pain," "Tennis Elbow," or a generic "Outer Knee Pain, Slightly to the Front." After finding the problem, you're given an explanation, a do-it-yourself test to confirm the diagnosis, and finally treatments that range from ice and aspirin to a trip to the doctor.*

This book has become my primary reference for aches and pains and is especially valuable when deciding whether a complaint is an annoyance or serious.

—Dick Fugett
[Suggested by Lloyd Kahn]

Listen to Your Pain
Ben E. Benjamin, Ph.D.
with Gale Borden, M.D.
1984; 340 pp.
$9.95
($10.95 postpaid) from:
Viking Penguin Books
299 Murray Hill Pkwy.
East Rutherford, NJ 07073
or Whole Earth Access





"Shin Splints"

•

You have a lot of trouble kicking people when you have this injury, and running up hills and jumping aren't fun either. This injury has been with us so long and is so common that it's acquired a totally nonsensical nickname, "shin splints."

•

Diagnostic Verification
Test 1. If your pain is in the front part of your shin and slightly to the outside, at least one of the following two tests should reproduce your discomfort. The first one is simple. Wearing shoes, raise your toes off the floor and balance on your heels. Be sure to hold onto something so you don't fall. After doing this for a moment, severely strained shins will begin to hurt.

•

Treatment Choice
Self-Treatment. Self-treatment is possible only when fatigue is the major factor in your strain. In these cases rest and ice treatment done along with Ankle Flexion, p. 266, are effective. During an ice treatment, exercise by flexing and pointing your foot thirty to fifty times every fifteen minutes. If possible you should stop all the activities that are causing you pain.

Swim for Fitness

The explanations of what to do in the water are brief and to the point, and the diagrams are excellent. Unless you are already an expert swimmer, this book will help you swim more efficiently. It's written by an avid competitive swimmer. *—Richard Nilsen*

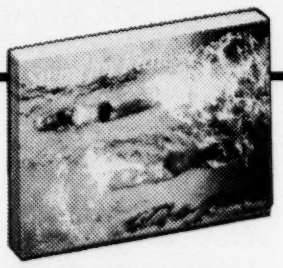
•

In freestyle, as in the other strokes, you move forward not by moving water backward, as is sometimes thought, but by pushing the arms and legs against the resistance offered by the water. . . .

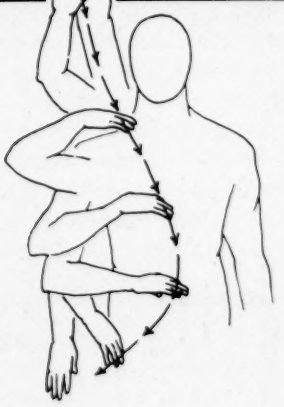
If you can press your hand against water that is not moving, you can push yourself further forward than if you are in water that is already moving backward. . . . Make an elongated "S" pattern with your hands when you swim freestyle. This way your hand will avoid following a column of water that is moving from the moment you begin your pull backwards.

The hand zigzags back and forth so that it may constantly encounter still water, which will offer the greatest resistance. . . .

The arm is bent significantly throughout the major portion of the pull. The reason for this is that leverage is greatest with a bent arm.

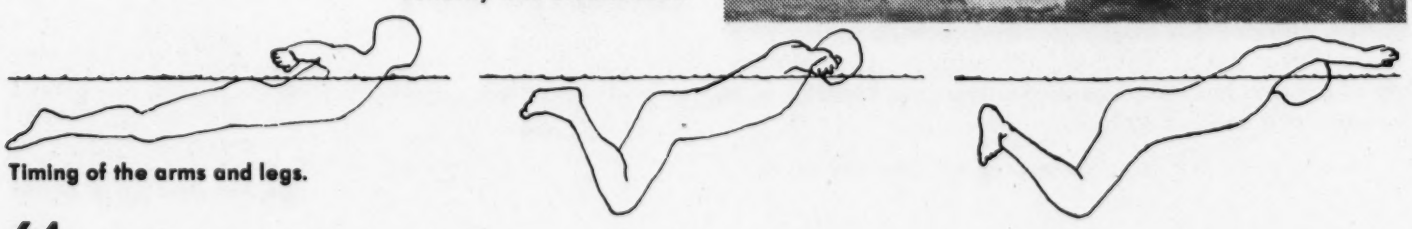


Swim for Fitness
Marianne Brems
1979; 173 pp.
$7.95
($9.45 postpaid) from:
Chronicle Books
One Hallidie Plaza
Suite 806
San Francisco, CA 94102
or Whole Earth Access



Underwater elongated "S" pull pattern.

Butterfly with breaststroke.



Timing of the arms and legs.

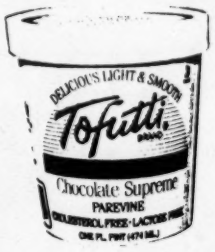
Nutrition Action

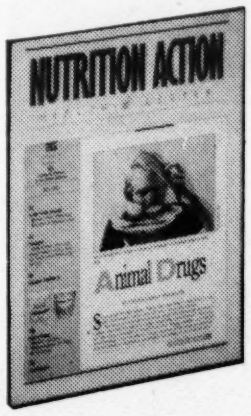
The Center for Science in the Public Interest (CSPI), a pro-consumer lobbying group, publishes some of the most useful consumer materials on the subject of food and nutrition. Ask them for a sample copy of their newsletter, ***Nutrition Action****, and their catalog of books and computer programs. My own personal favorite is their Nutrition Scoreboard ($3.95), a kitchen wall poster which lists "health scores" for dozens of different kinds of foods. This is the expert to consult when making out your shopping list. If you are committed to healthy eating, you should consider becoming a member of CSPI.*

—Tom Ferguson, MD

Nutrition Action Healthletter
Michael Jacobson, Editor
$20/year
(10 issues)
Catalog **free**

Both from:
Center for Science in the Public Interest
1501 16th Street NW
Washington, DC 20036





•

Despite Tofutti's oft-repeated claim to be a "tofu frozen dessert" and its maker Tofu Time's ads showing the product surrounded by chunks of tofu, Tofutti doesn't contain enough tofu to shake a chopstick at. The product contains less than 10 percent tofu, according to soy food industry insiders, and probably much, much less.

◄

Two all-beef patties . . . and what else? State and local governments are beginning to enforce federal ingredient labeling for fast food.

Nutrition in Clinical Practice

All around, the most levelheaded scientific treatment of nutrition — a field rife with unbalanced theories. Cautious, yet open minded. A good clear summary for students. *—Michael Lerner*

Nutrition in Clinical Practice
Marion Nestle, Ph.D.
1985; 328 pp.
$16.95
($18.55 postpaid) from:
Jones Medical Publications
355 Los Cerros Drive
Greenbrae, CA 94904
or Whole Earth Access

•

Hair analysis
The idea that minerals are incorporated into growing hair in proportion to their levels in the body has led to the widespread use of high energy emission techniques to evaluate trace mineral status. The proportionality of dietary intake and hair concentration, however, has yet to be established for a single essential nutrient.

•

Relactation
Women who have never had children or have not given birth for a long time can be induced to lactate by a combination of breast stimulation, suckling, and, occasionally, oxytocin (as a nasal spray). The milk produced by these methods is closer in composition to mature milk than to colostrum, but it contains fewer immune factors and nutrients. The volume produced is rarely sufficient; relactating mothers need to supplement their milk supply with formula. These methods do, however, permit adoptive mothers to at least partially nurse their infants if they wish.

•

Low serum cholesterol. More than 20 studies of the relation between high serum cholesterol levels and coronary heart disease have unexpectedly revealed another association: low serum cholesterol levels are strongly correlated with increased cancer incidence. This unsettling observation has yet to be explained. Low serum cholesterol levels seem more likely to result from cancer than to cause it. Alternatively, both may be induced by some third factor. For example, increased cholesterol excretion might lower serum levels while increasing colonic concentrations of cholesterol metabolites, secondary bile acids, and carcinogens.

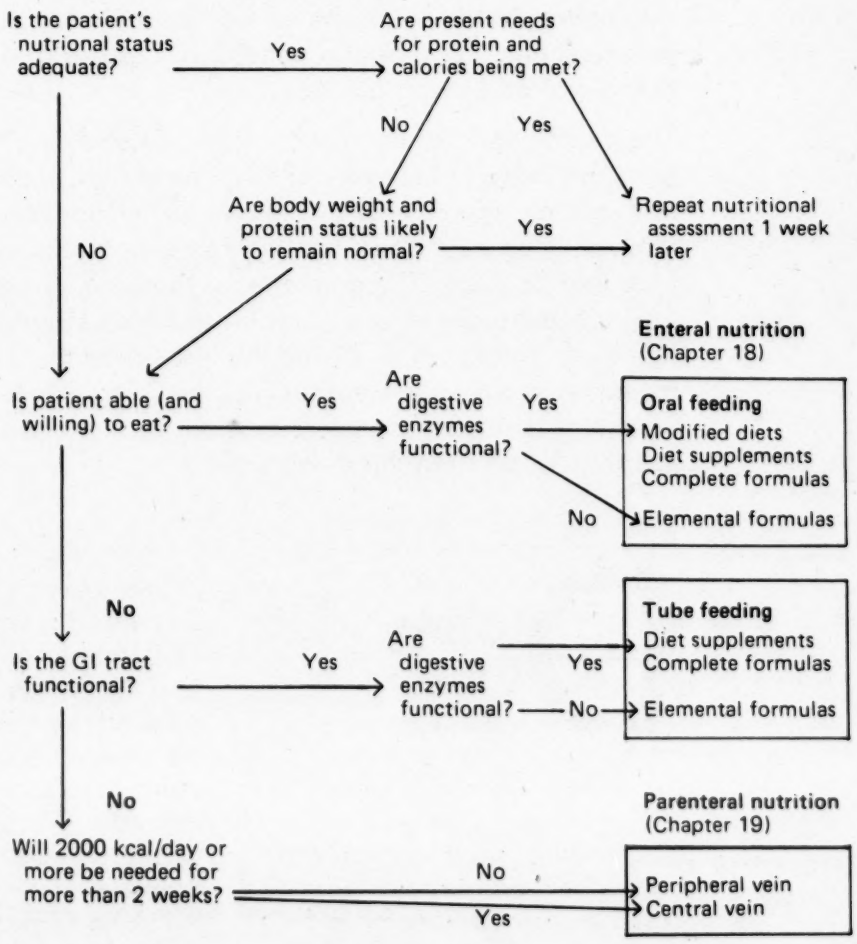
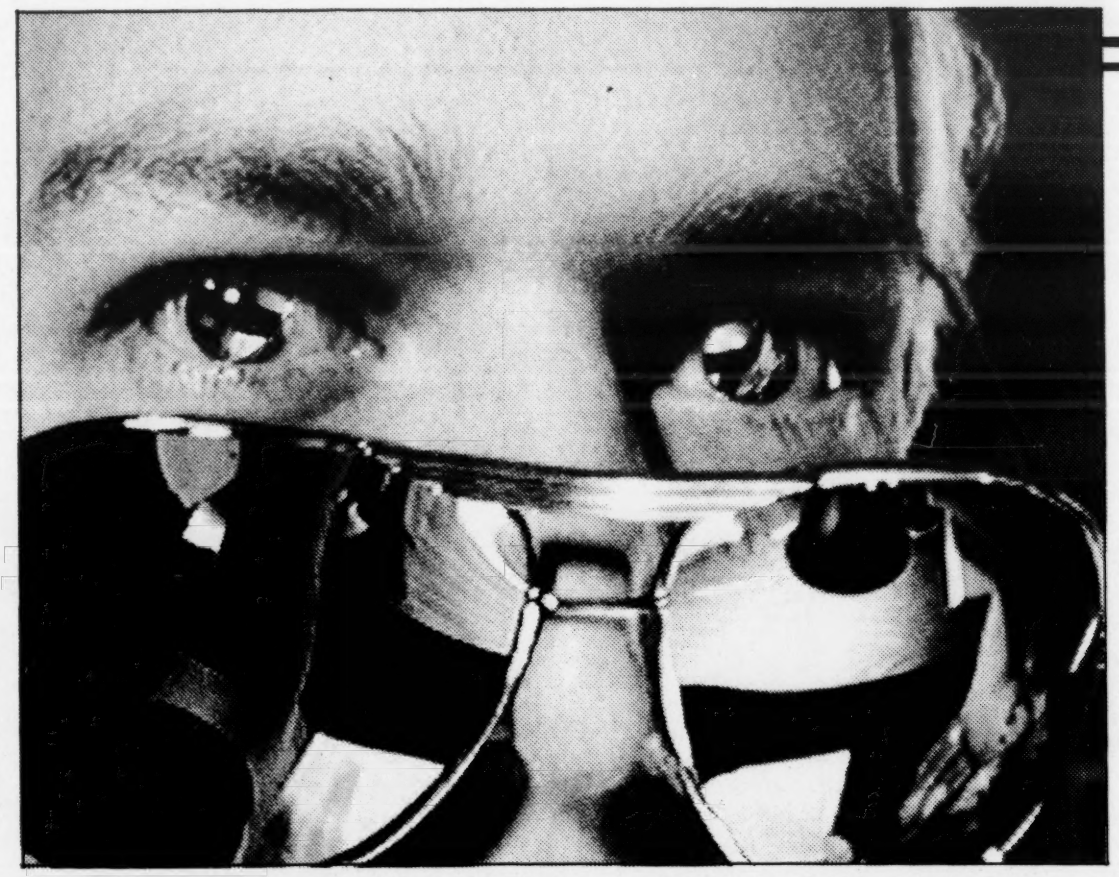


Figure 17-1. Decision guidelines for selection of nutritional support methods



"Cold Eyes" by Paul Reiche. "I've always wanted reflective contact lenses since I saw them on Star Trek," says artist Reiche. He shot a self-portrait on videotape, then masked out the iris of his eyes, leaving the pupil intact, and replaced it with a reduced-to-fit image of the reflecting sunglasses, and then added reflections from his real eyes to get a three-dimensional effect. All the images on these pages were entries in a computer graphics art contest sponsored by Island Graphics and AT&T EPICenter, created with the TARGA 16 board and TIPS software.

Hands-on IMAGE EDITING

by Barbara Robertson

WHEN disparate technologies converge, opportunities arise for pioneering souls with the vision and resources to take advantage of the new, emerging medium. Recently, three areas of technology have been merging — video, computer graphics, and publishing. While many people are aware of the revolution in computer-aided publishing, few know of the connection between video and computer graphics, and only a handful are aware of the connections being crafted among all three.

The digital world of computers crashed headlong into the analog world of video in the early 1980s. The results, seen nightly on network television by millions of people, include a variety of special effects: flying beer cans, racing razors, and other animated objects that populate TV commercials; three-dimensional, rotating logos; bizarre distortions of reality like Max Headroom; the flights of fantasy on MTV; and the less startling graphics used for news, sports, and weather. Yet, amazingly, the million-dollar hardware, software, and service industry that creates these videographics is less than three years old.

DIGITAL VIDEO

The machines used by people to create the most spectactular effects cost millions — a Cray for last year's sexy robot in the can commercial and this year's Mick Jagger "Hard Woman" music video, several Ridges for the long-running "Entertainment Tonight" logo. And the companies which produce these effects charge thousands for the service. (A flying, three-dimensional logo such as those used to introduce TV sports and movies can cost $5,000 a second, for example.) However, the price of the technology used to create these effects is being driven down by market pressure, and along the way, some interesting products for personal computers have evolved.

Videographics exist largely because computers can now capture and hold images in semiconductor memory in real time. Once a picture is in digital form, the image can be easily modified — cut and pasted and painted on, color corrected, merged with other pictures. The result can be put back onto videotape or printed. Indeed, nearly everything you see on television has passed through a digital "still store" system, and very expensive computer graphics systems have been developed that allow easy editing of these digital, moving video images. With these systems, artists can easily change the appearance of a person in a videotape, add people to a crowd scene, and change day into night through simple cut and paste and painting functions. The alterations to the original videotape cannot be detected.

Although the ability to quickly edit a video sequence is not available on microcomputers yet, it is now possible to transfer a video picture into a computer and edit that one frame. This ability to alter real-life images has some interesting applications in the non-video world.

CAPTURE AND DISPLAY

Since videotape runs at 30 frames per second, in order to capture a frame in "real time," computer hardware must convert the incoming video image into a digital picture in one-thirtieth of a second. Computer graphics boards that do this are called "frame grabbers." ('Image digitizers"

such as MacVision and Thunderscan (*WER* #47, p. 40) also convert analog signals into digital pictures, but not in "real time.") The result is a digital image made up of a mosaic of pixels — tiny onscreen squares (or rectangles). Graphics boards that hold digital images are called "frame buffers."

The amount of processing power needed for a digital image is determined by resolution — the number of pixels used in the onscreen mosaic — and by color. The "depth" of each pixel, that is, how many bits of data are assigned to it, determines the number of colors available (with a few tricky exceptions to the rule). The more pixels and the more bits per pixel, the closer a digital image comes to reality.

Colors are important not just for "matching" reality, but also for "antialiasing." Antialiasing smooths the jagged lines that square/rectangular pixels are doomed to create by using color shades to blend the stair steps into the background. It thus tricks the eye into believing the lines are straight.

Strictly black-and-white images like those on a Macintosh require relatively little image-processing power since each pixel can be only black or white — which helps keep hardware costs low and the programming task relatively simple. But when each pixel can be numerous colors, imaging begins to get sophisticated.

To display 16 colors takes four bits per pixel; to display 256, eight per pixel; to get enough onscreen colors to simulate a landscape takes 15 to 24 bits per pixel which buys you 32,000 to 16 million colors. When these numbers are tied to onscreen resolution, imaging gets expensive and processing intensive.

For high-quality, full-page printed images, pictures need a minimum of 2048 x 2048 pixel resolution which translates to approximately 200 printed lines per inch for an 8" x 10" picture. (The smaller the printed image, the higher the printed resolution appears since the pixels are compressed into a smaller space). Imagine the processing power and programming sophistication required to manage more than four million pixels, each with a long tail of bits following behind. The cost is reflected in the price of all the components — from the board itself, to monitors that can display the image, to software that works with it.

This is why the link between computer graphics and video is happening more quickly than a direct link between computer graphics and high-quality print, which demands much more data processing. For a digital image to match video resolution, you need only about 512 x 480 resolution — a relatively low requirement compared to the 2048 x 2048 resolution needed for a printed image. The emerging standard for IBM PC graphics, the EGA board and clones, for example, easily handle 640 x 480 resolution (but only a puny number of colors). As a matter of fact, image digitizing has long been available on personal computers, as has video output.

But until recently, image digitizers available for microcomputers merely translated video images into monochrome digital pictures, and then "pseudocolored" the image using mathematical algorithms to replace shades of grey with colors — usually displaying no more than 256 colors onscreen. The result could be bizarre — if the same shade of grey, for example, appeared in a tree leaf and on a person's face, the computer might put spots on green on someone's cheek, or flesh tones in leaves. What's more, the image digitizers captured pictures slowly — many took one to two seconds to scan an image, so any movement would significantly blur the result.

Today, multiple forces from at least four sectors — engineering, image processing (medical, seismic, military), publishing/printing, and the video industry — are driving down the price of frame grabbers and frame buffers.

AT&T'S WONDER BOARD

About two years ago a small group of engineers organized as an entrepreneurial group under AT&T's wing opened their offices in AT&T's former House of the Future in Indianapolis, Indiana. Last year, the EPICenter (Electronic Picture and Imaging Center) introduced a bombshell — the TARGA 16, a combination frame grabber and frame buffer that works on household IBM PCs and compatibles.

The board is pricey, $2995, but it's unique — the first, and still the only, graphics board in its price range for a microcomputer that 1) captures and digitizes video images in real time; 2) displays images with enough colors to simulate a video picture (32,768 colors) in video resolution (512 x 480); 3) generates a standard NTSC video signal (which means TARGA pictures can be transferred to videotape and broadcast on American television); and 4) allows an incoming analog video signal to be mixed onscreen with the digital picture (genlock).

AT&T also sells a painting package, TIPS, developed by Island Graphics specifically for this board. Although other software companies offer painting packages for the TARGA 16, TIPS, expensive at $1250, is

(Above) "Viso 2," a painting of computer light by Mario Canali. (Below) "Monster Cookout", by Nancy Casalina is a computer graphic with the texture of tempera paint.

still the lowest priced and the best value.

With the TARGA 16 and TIPS system, live video can be mixed with an onscreen digital image and the composite digitized; brushes can paint with any pattern selected from the screen; selected areas on the screen can be instantly filled with color and patterns, cut and pasted, or flipped and rotated. The functions and ways to combine functions produce an enormous number of special effects. Yet the system is remarkably easy to use.

APPLICATIONS

The TARGA 16's acceptance in the computer graphics world, the number of companies popping up to offer products that work with the board, and the wide-ranging application of the board's ability to capture and alter images from real life attest to its uniqueness and usefulness.

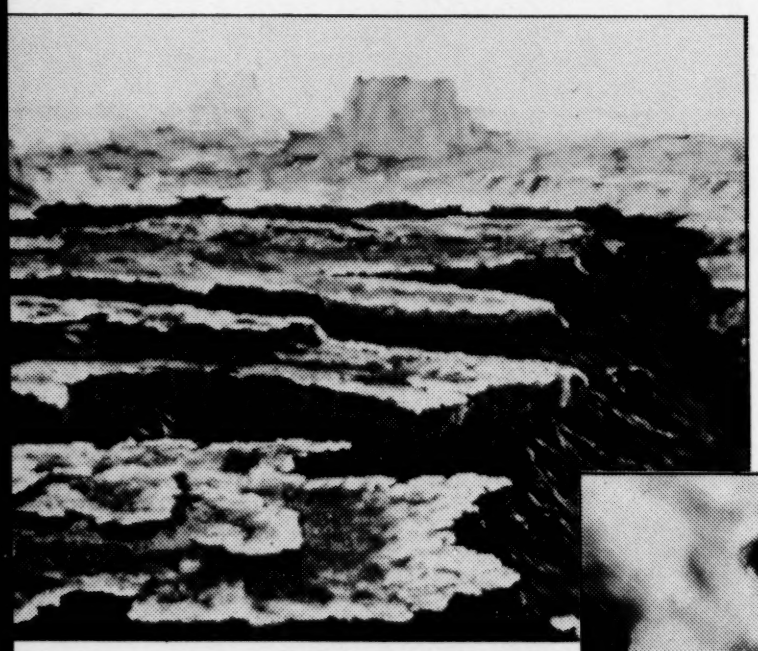
Architects are using the system to show clients and planning commissions what proposed buildings will look like upon completion. By capturing a video frame of a building site, then digitizing in a building plan and painting it, a rendering becomes a photograph rather than a pencil sketch. The TIPS software includes a large library of fonts for adding titles (not paragraphs of text) to images.

Recently, a California architect used the TARGA 16 and TIPS software to win approval for a building addition being avidly fought by neighbors who thought it would block their priceless view of the waterfront. Using a home video camera, he videotaped the scene from the neighbors' apartment building, captured a frame on his computer, painted in the addition onscreen, then photographed the result. Although the neighbors and the town planning board had been fighting about the proposed addition for some time, when the neighbors — who couldn't picture the result from architectural drawings — saw the photo, they instantly approved the addition.

This visualizing power also has other, equally impressive applications. For example, the ability to simulate a proposed reality is being used by cosmetic surgeons to show people how they might look after plastic surgery.

Fashion designers are playing "what if" by drawing an outline of a model onscreen (or capturing a picture of a model), then quickly switching clothes and patterns — painted with the software program, or captured with a video camera. Similarly, textile designers are working with patterns captured from the real world.

Landscape contractors and gardeners could "plant" a landscape by cutting and pasting pictures of real plants into an onscreen picture; by painting a hedge or a flower border using a computer paintbrush that's a pattern of flowers or leaves rather than a solid color; by cutting and pasting, then blending together picture blocks to create a rock wall or a fence.



(Above) "Mesa," by Jody Sather. (Right) "Collapse," by Peter Montgomery. Variable brush sizes and color densities enable one medium to be tuned to each image's moods.

LIMITATIONS

Because of the resolution, the most natural output medium for pictures created on the system is videotape. The TARGA 16 is being incorporated into video systems designed for television broadcast — where, for example, it is used in combination with three-dimensional animation programs and videotape controllers as in the relatively low-priced picture-making system by Cubicomp ($50,000).

Since any picture created on the TARGA 16 can easily be transferred to videotape, architects, fashion designers, plastic surgeons, etc., could create a videotape library of images for archives and for client proposals. However, other than generating the correct video signal, the board alone does nothing to facilitate this process. You have to control the videotape machine, starting and stopping it yourself.

And because of the resolution, printed pictures from the TARGA 16 are not photographic quality. Slides and photographs can be taken by pointing a camera directly at the screen, but the result will be fuzzy compared to a real-life photo, especially if it is printed larger than, say, a wallet-sized photo. Any alternative is costly.

The pictures used to illustrate this article were created by using a film recorder from Dunn Instruments (which costs about $5000) that connects to the computer and produces slides from the onscreen image. Film recorders and systems to produce higher-quality images by mathematically increasing the resolution are being developed (but don't expect them to be cheap), as are color printers that can print 1000 colors in 300-dot-per-inch resolution. Prices for the

printers, from Polaroid and Mitsubishi, are expected to start at around $3000. (The EPICenter publishes a free newsletter that includes information on these and other products under development for the TARGA 16.)

In addition, at least one service company, ImageSet in San Francisco, using a special process that removes the scan lines (the horizontal lines that appear in computer pictures), will make slides and color separations from TARGA 16 images sent to them on disk. ImageSet charges $150 for a color separation, $13 for a negative.

In the future, TARGA 16 images may be incorporated into desktop publishing programs. Because EPICenter engineers have written a PostScript driver for the TARGA 16, images can be printed (with grey shades replacing colors) on laser printers such as the Apple LaserWriter, and on typesetters such as the Linotype 101 and 202 that accept PostScript files — if the software application incorporates this feature. As yet, no products exist to take advantage of the PostScript drivers; however, some companies are working on this feature.

When desktop publishing programs that include TARGA pictures become available, people might find it easier, faster, and cheaper to use videotape rather than traditional photography for pictures in some applications. Currently, if you want to include a photo in a page that's entirely composed and pasted-up on a computer, you must photograph the image, develop and print the film, then use an image scanner to feed the image into a desktop publishing program. With the TARGA system, you could shoot a videotape, plug the camera into the computer, grab the photos you want as they appear onscreen, and transfer them to the publishing program, then reuse the videotape.

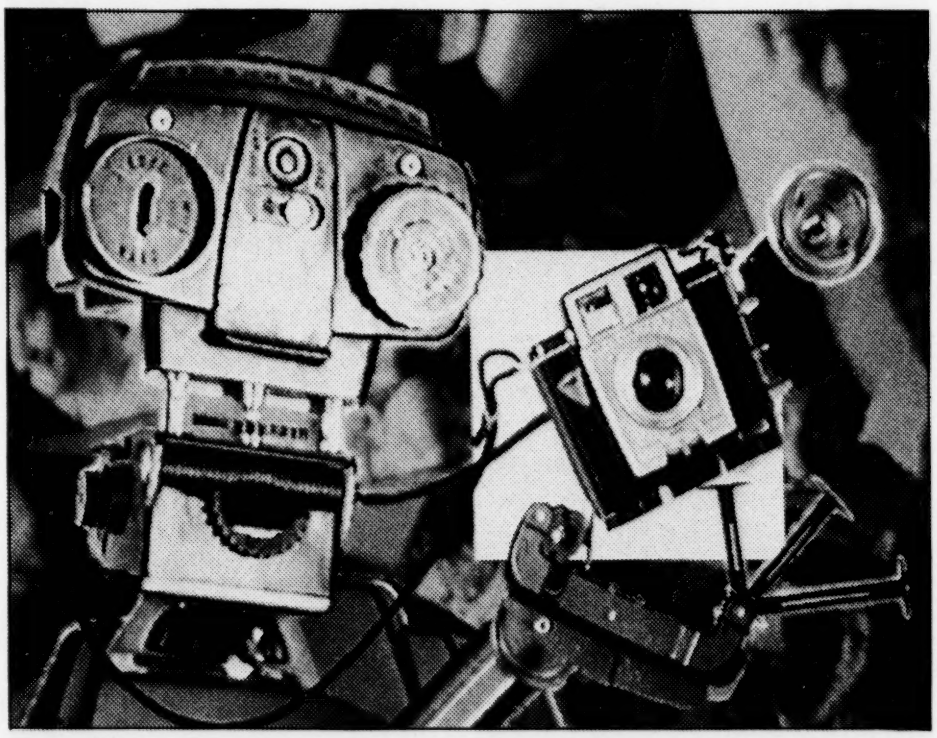
And someday soon, because PostScript has the ''hooks'' to allow color information to be transfered to printers, it should be possible to include TARGA images in four-color pages composed and typeset on a personal computer and printed without ever going to film. All the color separations could be generated by computer. And thus, we're beginning to see the end of film in the publishing process, and the beginning of low-cost color printing.

CONCLUSION

Like most computer applications, the TARGA 16 shines in its ability to speed the editing process. Most computer graphics systems require that you create an image totally drawn on the computer and therefore doomed to look computer-generated. With the TARGA 16, you can capture the picture. And it is the ability use bits and pieces of the real world to create imaginary images that makes the TARGA 16 unique. With a word processor, you can edit documents; with a spreadsheet program, you can edit numbers; with the TARGA 16, you can edit images.

Artists who can afford the system would find it a good conceptual tool and may find the images acceptable for some purposes. But the system's primary, most direct application (other than video production) is for people who want to quickly modify reality to show others how things would look ''if'' — architects, landscapers, interior designers, hair stylists and beauticians, real estate agents, plastic surgeons, environmentalists, photo retouchers. The printed output is not photographic quality, but photos created from TARGA pictures are close enough to make the created image believable. To create the same altered, yet nearly photographic, view of reality using any other means would be tedious if not impossible.

Access to affordable communication tools that were once the exclusive province of the wealthy gives power to individuals and is creating opportunities for small privately owned businesses. With boards like the TARGA 16, and competitors sure to follow, the power of imaging in all media is becoming affordable on an individual scale. ■



"Brownie 20," by Ian Allen. A robot made entirely out of camera part images. Plastic parts were digitally tinted metallic to reproduce the texture of copper.

ACCESS INFORMATION

AT&T's EPICenter: 2002 Wellesley Boulevard, Indianapolis, Indiana 46219. Sales: 800/858-TRUE; otherwise: 317/352-6120.

TARGA 16: 512 x 512 pixel resolution (512 x 480 displayed onscreen), 32,768 simultaneous colors, frame grabber and buffer, captures video in 1/60th second, NTSC and Analog RGB output, $2995; overscan option for broadcast video, $200; TIPS software, $1250. Additional cables $40 to $60. Requires IBM PC/XT/AT or compatible, AT/compatible and hard disk recommended; TV set, composite video or analog RGB monitor; TIPS requires Summagraphic digitizing tablet, MS-DOS 2.0 or higher.

ICB: 256 x 256 pixel resolution (256 x 240 onscreen), 32,768 simultaneous colors, frame grabber and buffer, captures video in 1/60th second, NTSC and Analog RGB output $1,295; TIPS software, $695. Additional cables $10 to $60. Requires IBM PC/XT/AT or compatible, hard disk recommended; TV set or composite video monitor, MS-DOS 2.0 or higher.

• Typefaces for the LaserWriter •

What's Your Type?

by Jay Kinney

(Note: Each paragraph in this article is set in a different typeface available for the LaserWriter.)

The Apple LaserWriter is a grand hunk of hardware. With the aid of a Macintosh and a word processing or page make-up program, the LaserWriter will pump out near-typeset quality text on ordinary bond paper. Even if you can't afford a LaserWriter (and at $5000 list price, most people can't), they are beginning to turn up in local copy shops where they can be rented by the hour. (LaserWriter Times Roman)

Yet the basic LaserWriter has only three built-in text typefaces (Times, Helvetica, and Courier) which are fine for most purposes but begin to pale quickly. (LaserWriter Helvetica)

What to do? A LaserWriter upgrade (to the LaserWriter Plus) adds five or six new built-in faces, but at $875 this is a pricey solution. Adobe Systems, which supplies the fonts for the upgrade, also sells individual "downloadable" typefaces, but these list for $185 per typeface family. These prices are so high for two main reasons: 1) the fonts are of the most painstakingly professional quality imaginable and took hundreds of manhours to create, and 2) Adobe must pay hefty type-licensing royalties to ITC and Mergenthaler — type corporations whose empires have been built around selling fonts and equipment to commercial typesetters. Yet despite their expense these fonts have distinct virtues that I'll return to shortly.(Adobe ITC Garamond)

The third solution is to go with the independent font suppliers who are rushing in to fill the gap. By crafting their own laser versions of type fonts under nontrademarked names, these software entrepreneurs sidestep the type-licensing fees and provide fonts at far more affordable prices. (Casady San Serif Book)

Casady Company's ***Fluent Laser Fonts*** are a strong alternative to Adobe's expensive typefaces. Carefully crafted using Altsys Corporation's *Fontographer* (a professional laser font development tool that we hope to review next issue), Casady's fonts, such as Bodoni, Regency Script, SansSerif (a Futura clone), etc. are careful renderings of popular commercial typefaces. Perfectionists may note a slight inconsistency of quality from letter to letter in some faces, particularly when using the fonts at the smallest point sizes, but overall these are quite satisfying typefaces at less than half the price of Adobe fonts ($69.95). Six typeface families are currently available, with more in the works. (Casady Bodoni)

Century Software offers 18 typefaces in their ***LaserFonts*** series and has the cheapest prices in the field: $29.95 per font family. Some of these fonts, such as the art deco Hudson (nearly identical to Casady's Ritz) or Potomac (an Optima knock-off), are crisp and well wrought. A number of the others, however, are irregular enough to give an uncanny impression of being hand-lettered. Careful selection is the key here. Happily, two of Century's font-disks are the best bargains around: *Micro-Fonts* and *Shadow Effects*. These disks enable you to run the LaserWriter's built-in fonts in extended, condensed, extra-small, and various shadowed and grey-screened versions. Microfonts alone is almost like tripling your available fonts. (Century Potomac)

Image Club Graphics in Calgary, Alberta, has a broad selection of 16 font families in its *LaserType* series. These tilt toward modern stylized fonts that are best used for headlines and graphic design. As a whole this is the most imaginative selection of fonts available, and includes such oddball items as typefaces designed to look like chrome bumpers, brass plates, rubber stamps, and brush lettering. At $34.00 each, these fonts are also quite affordable. (Image Club Tipe Thin)

Samples of laser typefaces:
Image Club's Paint Brush font (left)
Casady's Regency Script font (center)
Casady's Monterey font (right)

Altsys Corporation, whose Fontographer is the tool of choice for creating many of these new fonts, has also initiated its own ***Fontographer Font Library*** of designs from users of its program. As this is being written (October, 1986) their first font is available ($60) — the one you see in this paragraph — but there are more in the works. As an added bonus, Altsys fonts will include a copy of the Fontographer files for each font, enabling users to modify and customize the fonts further. (Fontographer Goudy Newstyle)

Whether you stock up on a dozen new fonts or just one or two will depend on your budget and your intentions. If you are just knocking out a modest club newsletter using a Mac and an hour of rented time on someone's LaserWriter, then you may want to acquire a selection of the less expensive, decorative fonts from Century and Image Club. (Century Thin Helvetica)

However, if you are doing professional-quality work where there's little room for imperfections, Adobe and Casady are your best bet. From its smartly designed packaging and documentation down through its impeccable font quality and satisfying selection (21 famous and popular typefaces now available with six new type-families appearing each quarter), Adobe stands out. Because of their prices, few folks beyond typesetting services or professional shops may be able to afford Adobe's fonts, which is a shame. Adobe's other drawback is their copy-protection scheme, which narrows use of the fonts to a single chosen printer. If you use a LaserWriter for preliminary proofs and a sharper Allied Linotronic for final typeset printouts, you have no choice but to pay an extra $190 to Adobe for a multi-printer version of each font. None of the other font companies use copy protection of this sort (though Casady does charge another $20 per extra printer used). (Adobe Trump Mediaeval)

In any event, whether one drops a bundle on laser typefaces or springs for just a couple (or none at all), be forewarned that typesetting Nirvana has not been reached despite all the hoopla over dozens of fonts. Although the LaserWriter is now able to automatically load digital fonts in and out of its memory as they are needed in a manuscript, the printing process can take an unexpectedly long time if you use more than two or three different fonts on a page. Once again, the old Bauhaus motto may still apply: "Less is More." (Casady PreludeScript)

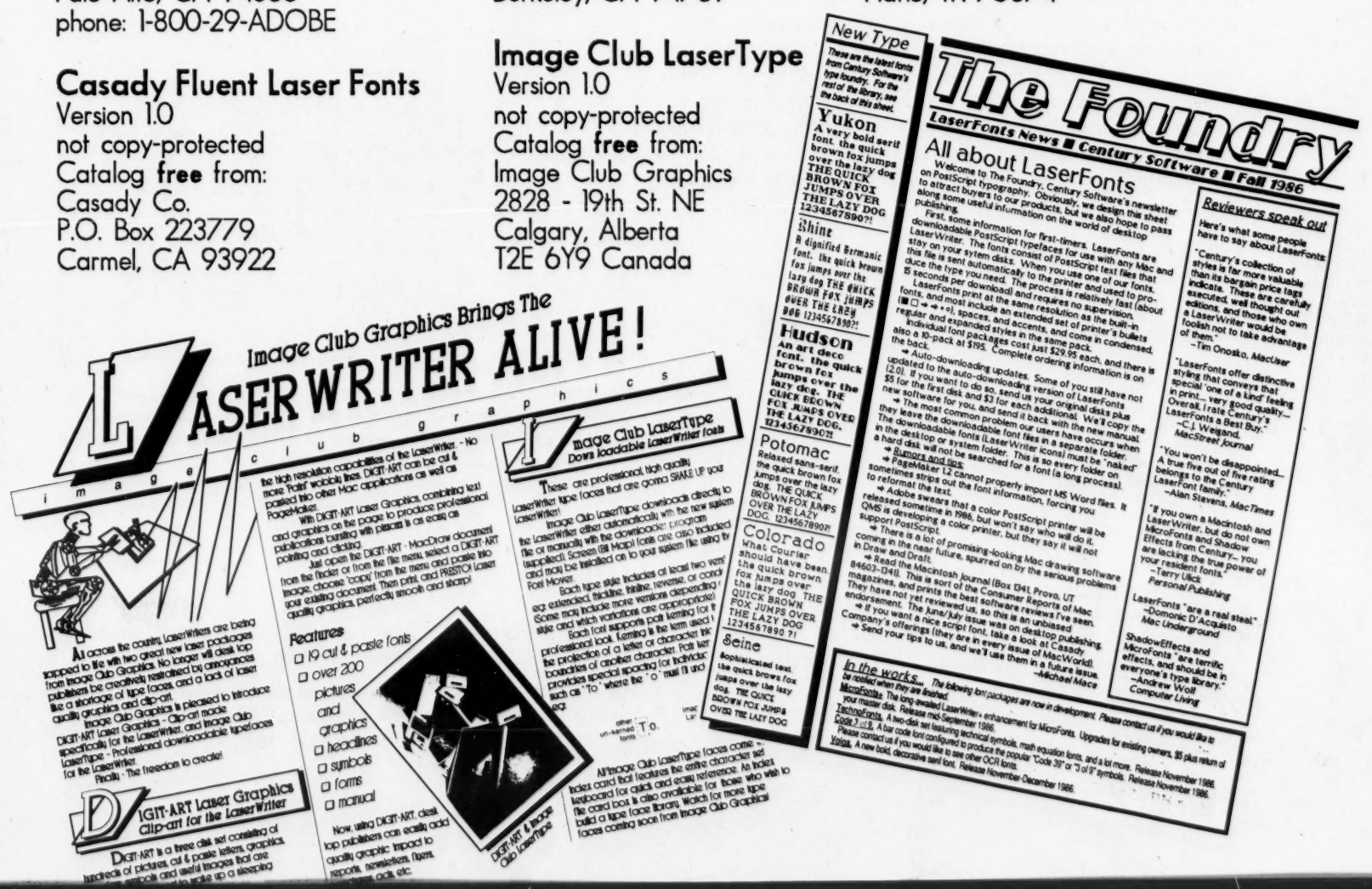
Adobe Typeface Library
Version 2.0
copy-protected
Catalog **free** from:
Adobe Systems Incorporated
1870 Embarcadero Rd.
Palo Alto, CA 94303
phone: 1-800-29-ADOBE

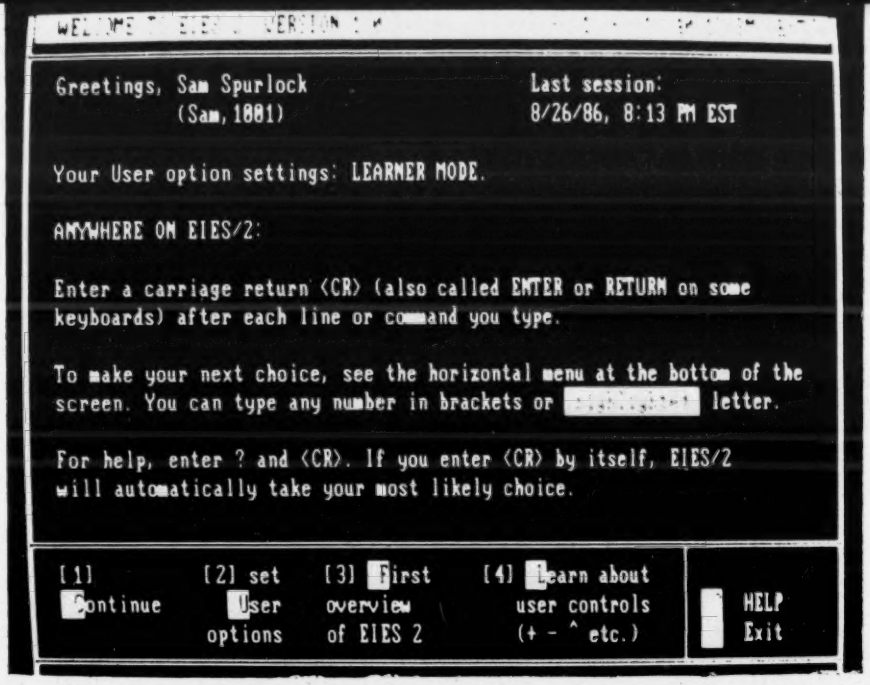
Casady Fluent Laser Fonts
Version 1.0
not copy-protected
Catalog **free** from:
Casady Co.
P.O. Box 223779
Carmel, CA 93922

Century LaserFonts
Version 2.0
not copy-protected
Catalog **free** from:
Century Software
2483 Hearst Ave. #175,
Berkeley, CA 94709

Image Club LaserType
Version 1.0
not copy-protected
Catalog **free** from:
Image Club Graphics
2828 - 19th St. NE
Calgary, Alberta
T2E 6Y9 Canada

Altsys Font Library
Version 1.0
not copy-protected
Catalog **free** from:
Altsys Corporation
720 Avenue F, Suite 108,
Plano, TX 75074





DEMO lets you design program screens and pretend they're real. This DEMO screen helped me visualize what people will see when they first sign on to a new computer network called EIES/2. —Art Kleiner

DEMO

The most valuable piece of MS-DOS software I've seen in the last couple of years is DEMO. This gem is a "prototyping" program that lets you design the facade, or the "screens," of a software program.

You use DEMO to produce a series of "menus" or forms that are displayed in response to specific keystrokes to give the appearance of a real, functioning program. What you create won't actually work, but it will look like it does.

With DEMO, any programming illiterate who thinks he's got a great idea (me, for example) can design a program to show to programmers or potential investors. It's also a cheap yet very professional way for software companies of any size to produce on-disk training lessons, or to test screen and functional design. I'll bet teachers could find a lot of uses for it, too.

DEMO is easy to use and beautifully thought out. I frequently think of a trick I wish it could do, then check the manual or the program itself and discover that this feature is already included. DEMO doesn't handle bit-mapped graphics (reportedly a future version will), but it uses everything else, including the IBM extended character set and all standard attributes, including colors. It's also not copy-protected.

DEMO is a real find. I'm finally able to easily design a program I've been thinking about for two years. A program like this ought to be included with every computer.
—Mick Winter

DEMO will even link your sample screens together so that, say, when you press a certain key while viewing the "edit" screen your "help" window will actually appear, just as it would in a finished program. The only thing your DEMO-created programs won't do is, uh, actual work. But if you are planning to create a working word processor, or better yet some entirely new type of program, DEMO will help you get the look right before you begin coding.

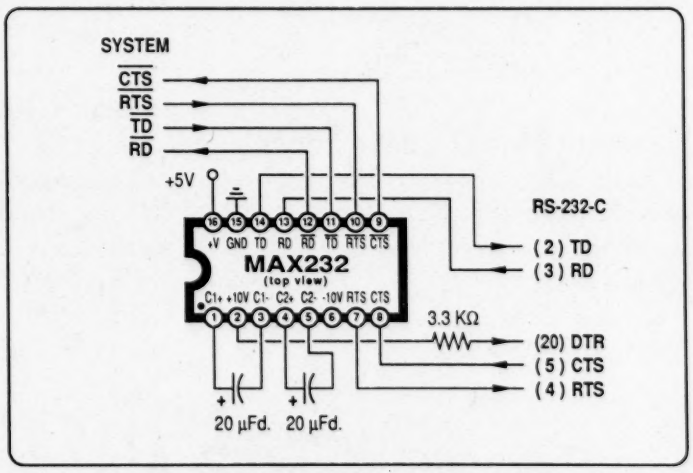
Written by Dan Bricklin, whose previous work, VisiCalc, instigated the entire popularity of personal computers, DEMO is faultlessly crafted. You can even translate your screen designs into plain text and post them on a telecommunications network for others to comment on. I recently used DEMO to design sample screens for a new computer conferencing system called EIES 2. Not only did DEMO cut out more than half my busywork, but I have never had so much fun designing anything.
—Art Kleiner

DEMO: not copy-protected. IBM PC/compatibles; 256K. **$74.95** postpaid from Software Garden, Inc., P. O. Box 238, West Newton, MA 02165.

Applewriter/Laserwriter

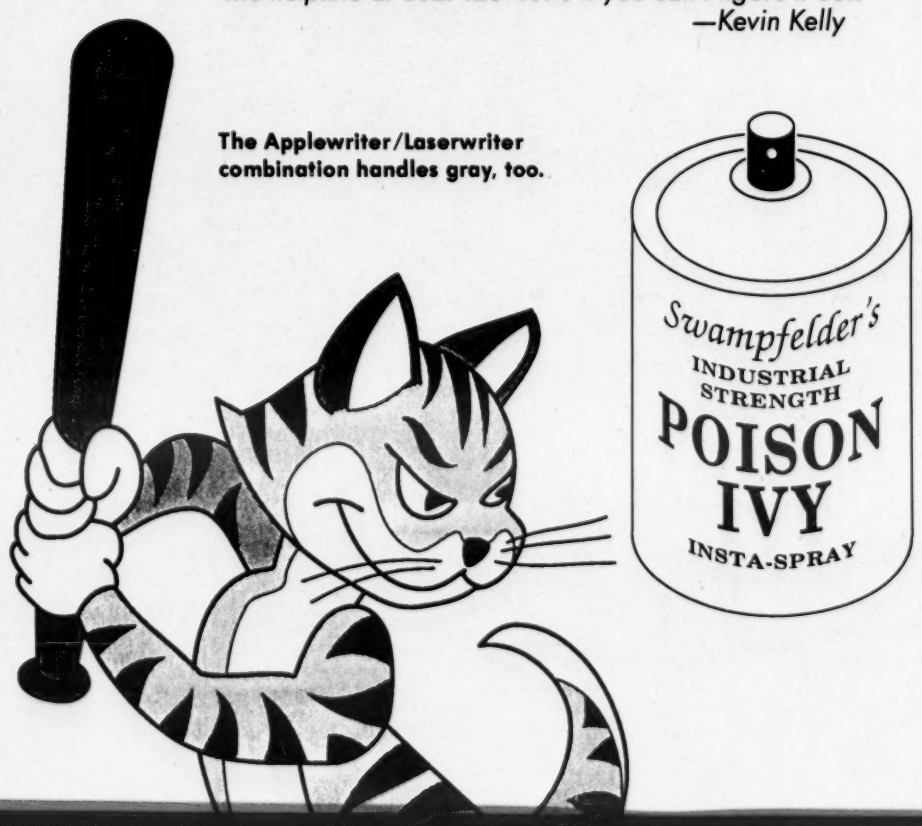
The spiffy, near-professional graphic quality that comes zipping out of a Laserwriter is not confined only to Macintosh users. Don Lancaster, one of the original hardware gurus of personal computers, has hacked a software program to link a household Apple IIe to a Laserwriter. It is not for novitiates since it will take some familiarity with how Apples work to make sure you hook it up right. Nonetheless, once it's connected, you can program it to do almost any kind of graphic using the Postscript language built into the standard Applewriter word processor. Call the helpline at 602/428-4073 if you can't figure it out.
—Kevin Kelly

Applewriter/Laserwriter: not copy-protected. Apple IIe/IIc. **$49.95** postpaid from Synergetics, P. O. Box 809, Thatcher, AZ 85552.



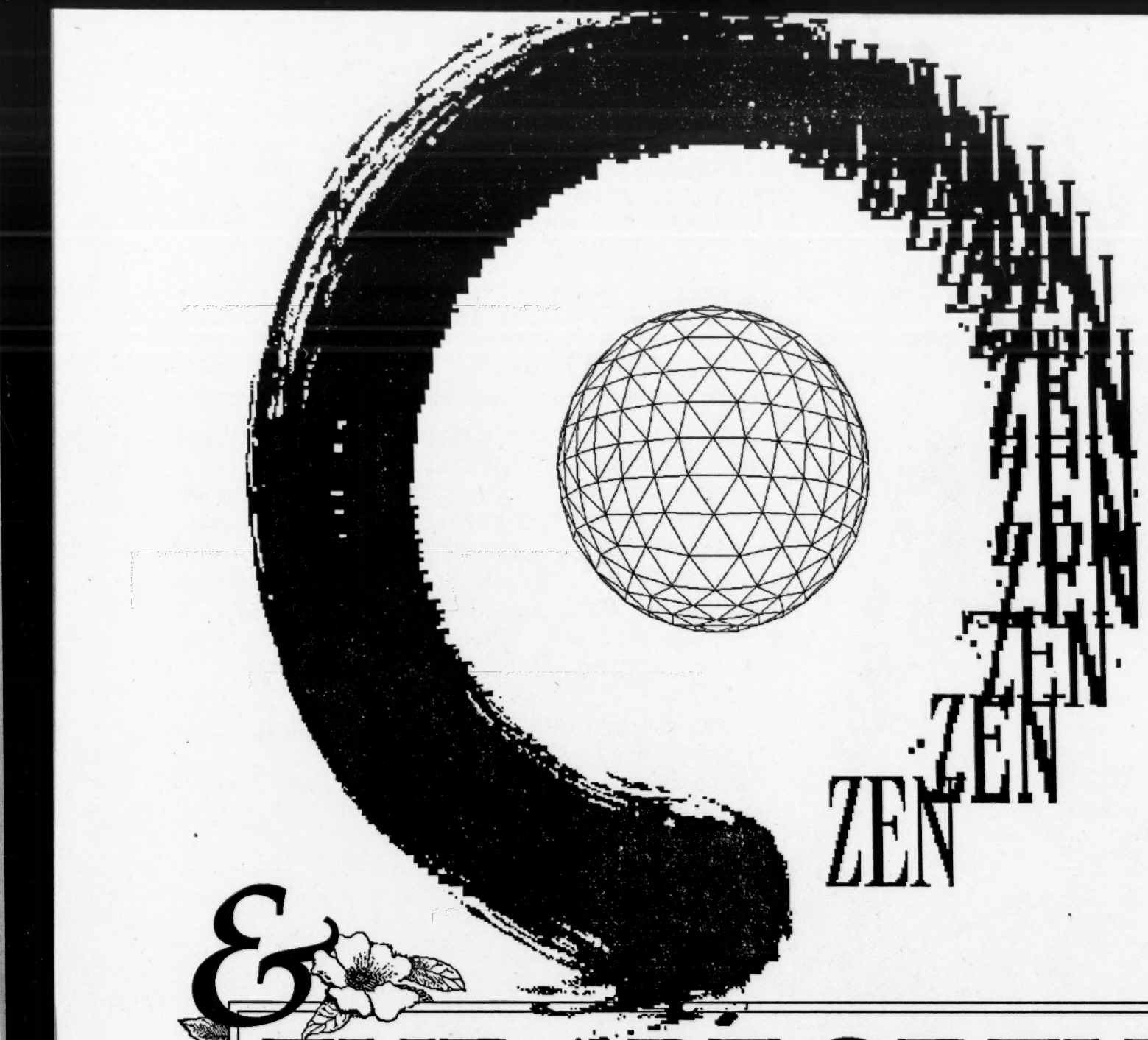
Electronic schematic diagrams are a natural for Postscript's combined graphics and text abilities. The first-rate results you see here are done by using actual Postscript procedures instead of bitmaps or screen icons.

The Applewriter/Laserwriter combination handles gray, too.



◄ Postscript is ideal for new product artwork, particularly for such essential goods and services as the one shown here.

Note that the lettering is actually wrapped around an isometric cylinder. By using a pixel line remapping technique, any message can be placed on virtually any surface.

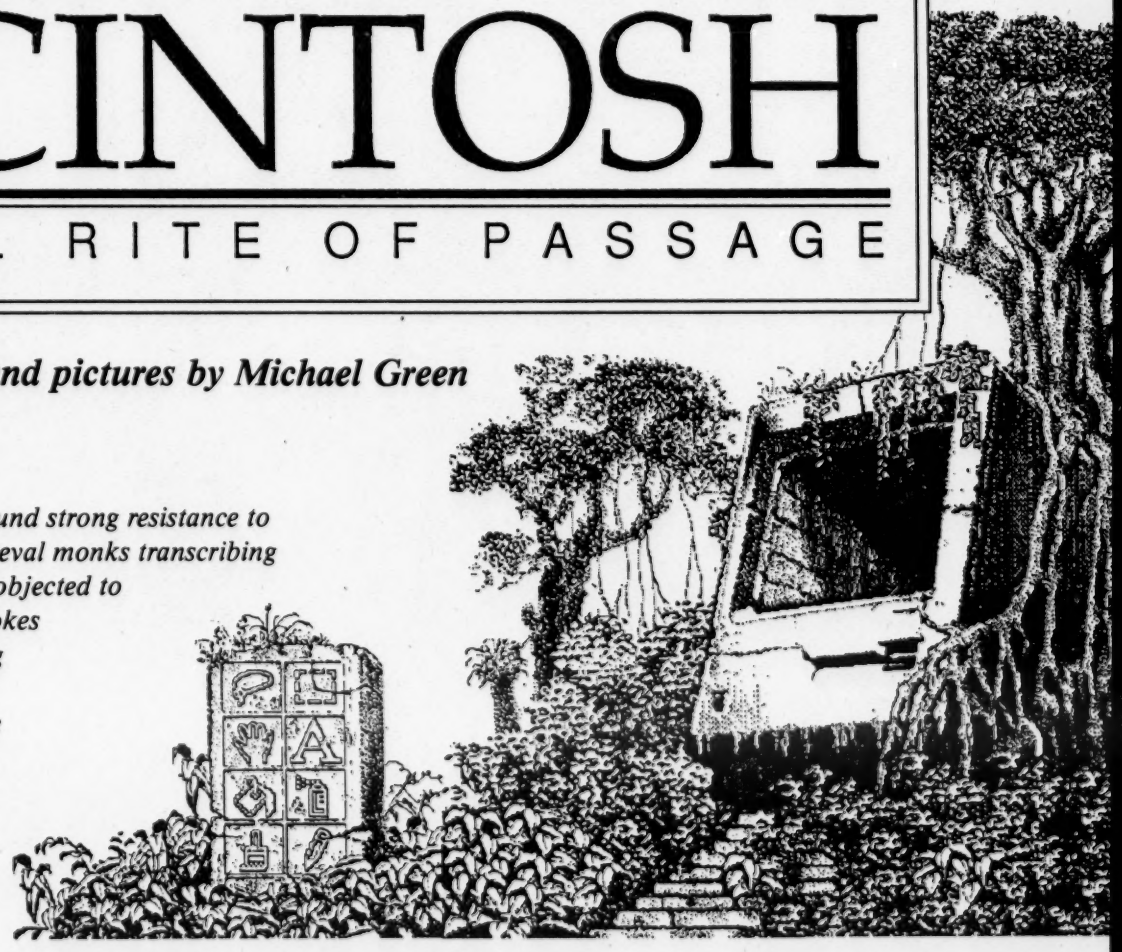


& THE ART OF THE MACINTOSH

A DIGITAL RITE OF PASSAGE

words and pictures by Michael Green

When Gutenberg invented moveable type, he found strong resistance to it among the current publishing experts — medieval monks transcribing the Bible. It seemed that what the monks most objected to was that his innovation removed the cursive strokes that connected letters within one word, breaking up the calligraphy and also separating writing from illustration. What Michael Green has done is to pioneer the return to a unified graphic in which the artist creates both the typography and the illustration. The meditating Macintosh is the pen for this electronic calligraphy. It promises a change in publication design. —Kevin Kelly



I HAVE LONG SUBSCRIBED TO THE THEORY THAT SILICON CHIPS ARE IN FACT A CULTURAL VIRUS JOSTLING WITH US FOR CONTROL OF THE PLANET.

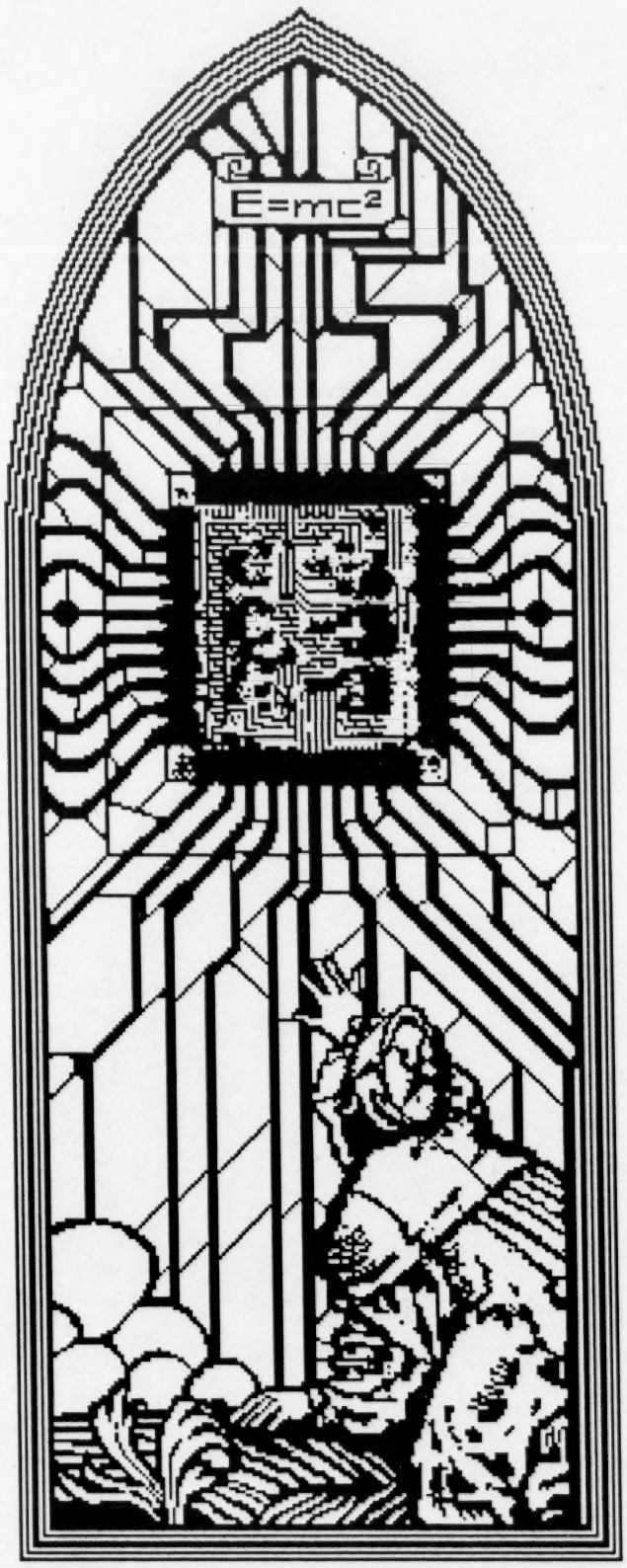
The argument is easily deduced from a textbook medical description of viruses:

Viruses are semi-living, extremely simple (compared to organic) structures which have no mechanisms for reproduction. They accomplish this essential task by invading living cells and "conning" the host organism into doing the replication for them. *In the process, the host cells often get out of whack (sick) or start multiplying wildly themselves (cancer).*

Now, run that by again, substituting silicon chip for virus, humankind for cells.

See how nicely it all works out?

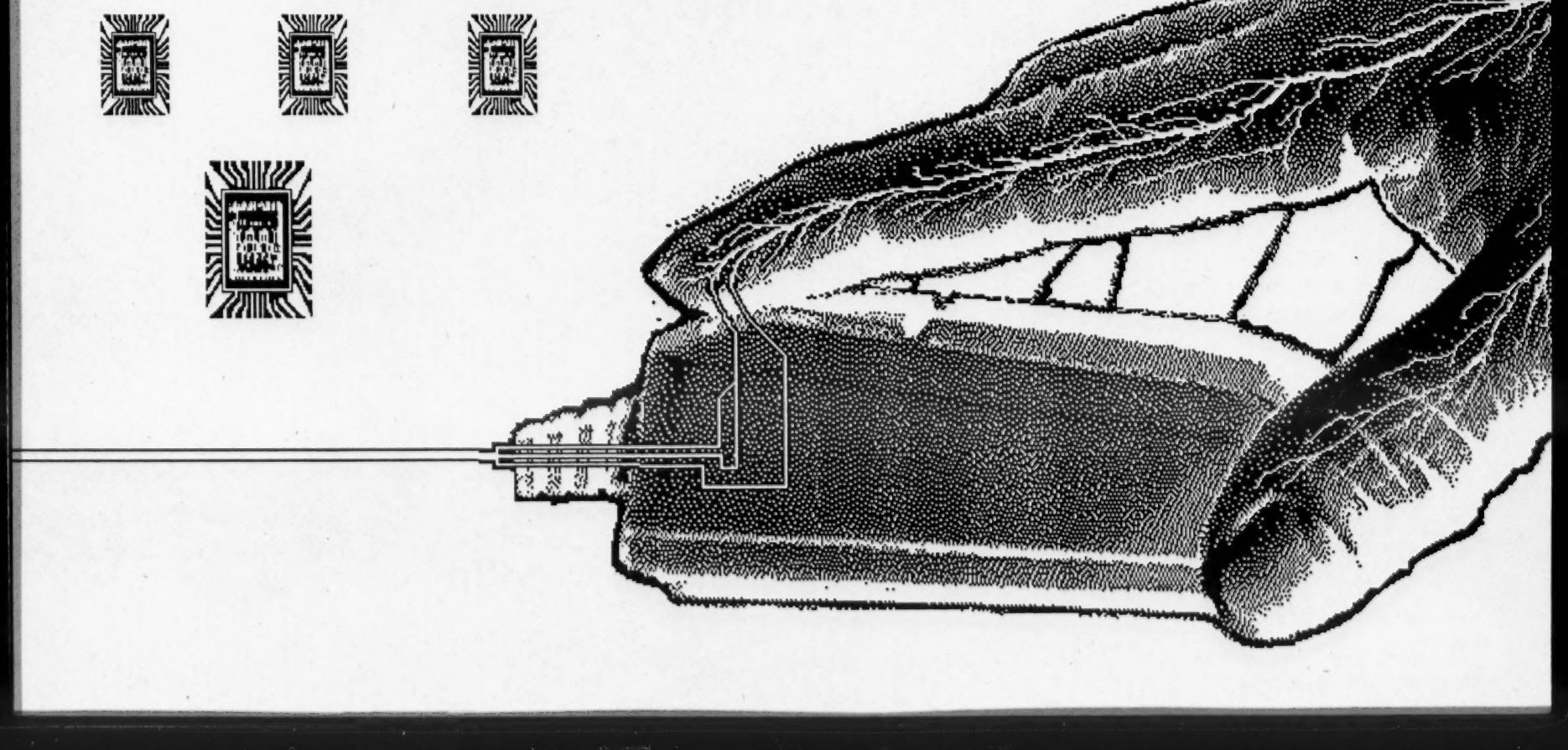
Creepy.



ON THE OTHER HAND, is it possible that computers are, as Marshall McCluhan claimed, an *"extension of our central nervous system?"* Has evolution "shifted from biology to technology?" By all accounts, an extremely *intimate* relationship can occur between man and chip. Is it just another modern dementia? Or is there some truth to be found in the visionary claims of these hackers, *info freaks,* telecommunicators, *et al*? Are the rest of us missing something important?

Trouble is, any first-hand investigative plunge into serious computer consciousness requires a kind of sustained mental commitment most of us aren't about to whip up. Learn Pascal? Source code? I was curious—but not *that* curious.

Sci–fi conspiracies aside, the drudgery of re-editing my last book was inspiration aplenty to look for a word processor. I decided on the **Macintosh**—its sharp graphics might add some polish to a new project I had just begun.



Working with a Mac is mostly done with ICONS-

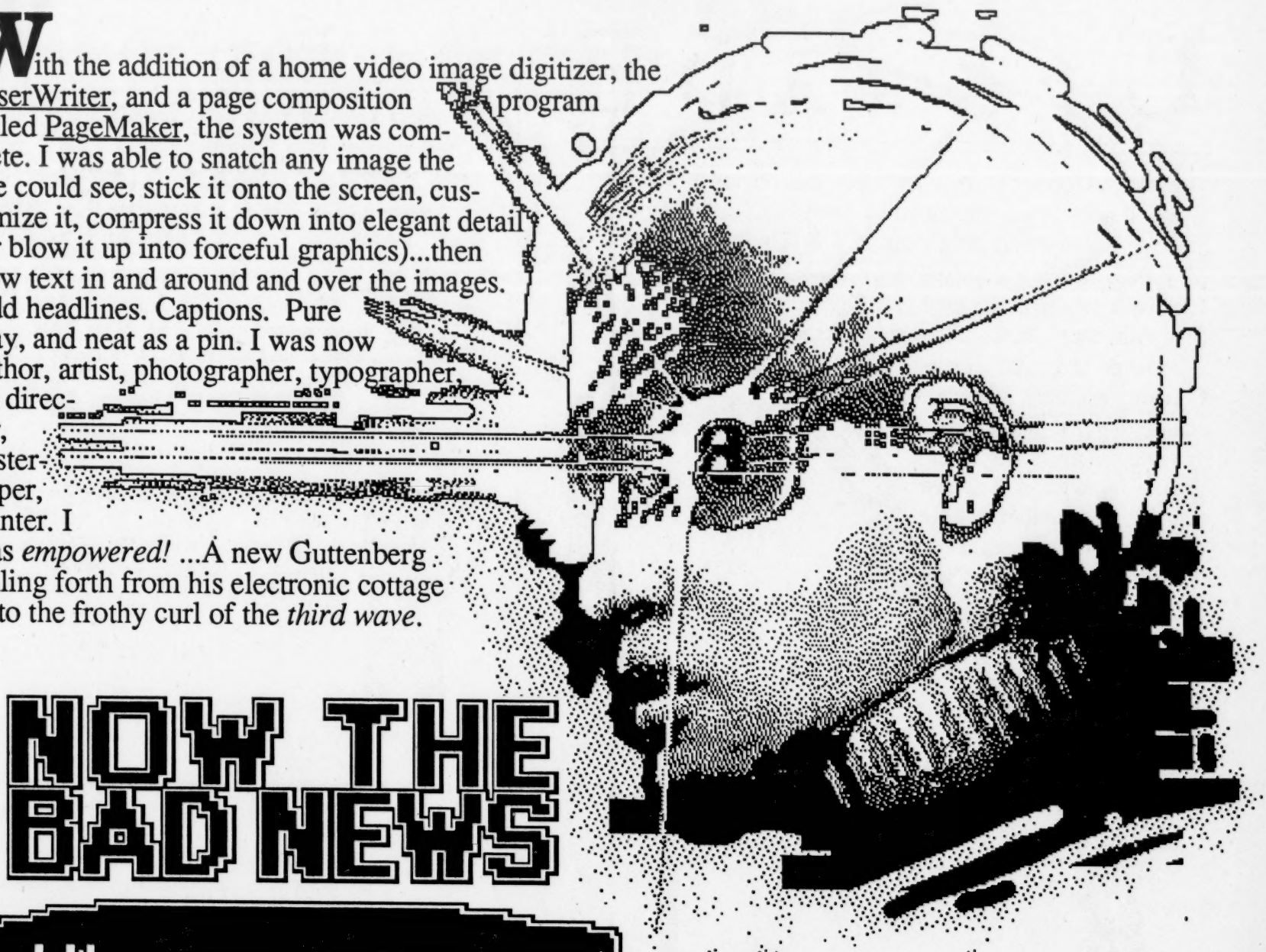
symbols that activate its functions. Like Chinese writing or heiroglyphics, they're not phonetic, but point directly to what they stand for. Like them, icons slip right past the left-brain interpreter and interact immediately with intuitive right brain comprehension.

Thus, effortlessly, I entered the garden of digital delights. Somehow, with the Mac, the process of laying down forms, shifting them around, erasing, restoring, ...was characterized by an electric feeling of *lightness*. The real genius of this medium, I discovered, is not in the actual drawing of images but in the *manipulation* of them. Devotees of word processing already know how the power of unimpeded word rearrangement can boost many people onto a new level of personal expression. Same here: *imagewriting*.

Creative communion with a microchip. A fascinating experience! It had me firmly hooked. Quite an embarrassment for a former tipi dweller.

You can almost *feel*
how the picture is just a
delicate lace of charged particles
dancing to your every move.
Subtle! Delicious!

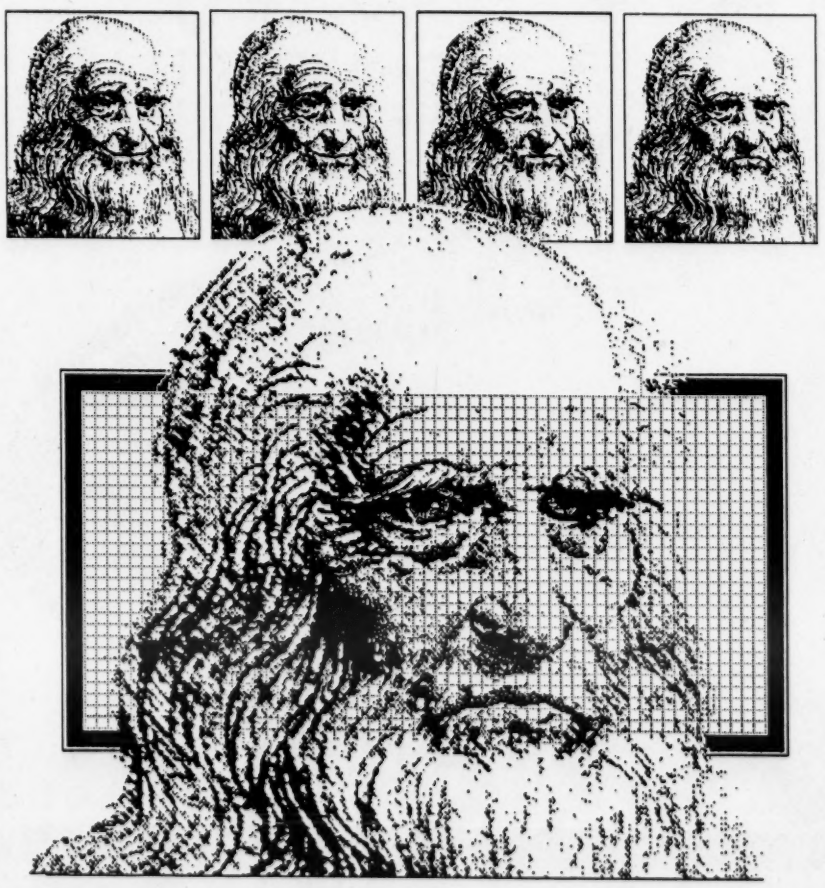
With the addition of a home video image digitizer, the LaserWriter, and a page composition program called PageMaker, the system was complete. I was able to snatch any image the eye could see, stick it onto the screen, customize it, compress it down into elegant detail (or blow it up into forceful graphics)...then flow text in and around and over the images. Add headlines. Captions. Pure play, and neat as a pin. I was now author, artist, photographer, typographer, art director, paster-upper, printer. I was *empowered!* ...A new Guttenberg sailing forth from his electronic cottage onto the frothy curl of the *third wave*.



NOW THE BAD NEWS

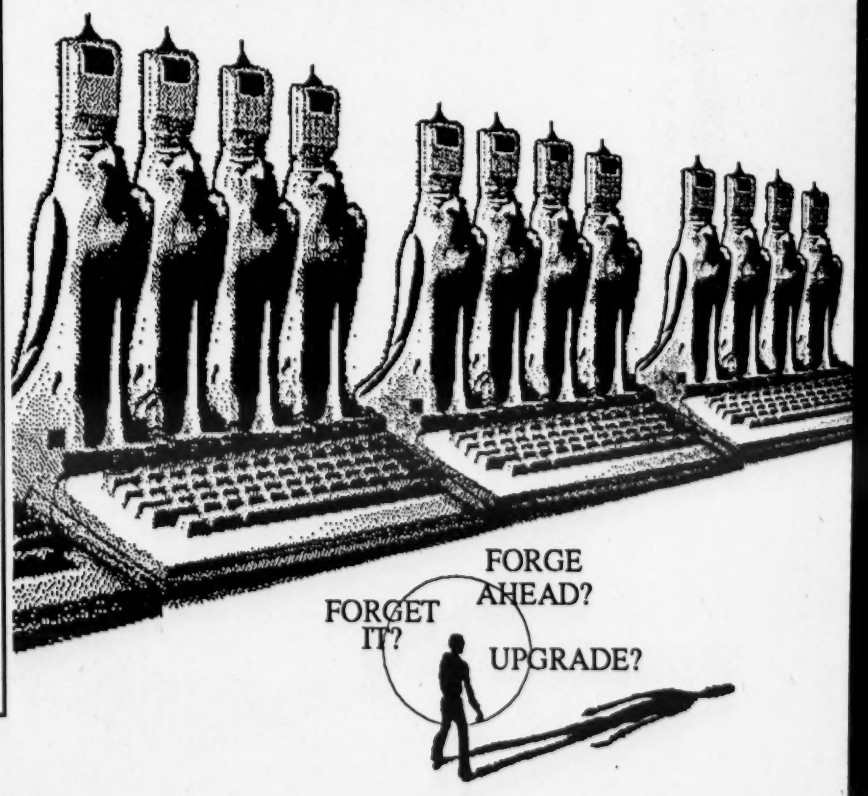
SOONER OR LATER ANYONE DOING CREATIVE WORK WITH A COMPUTER WILL ENCOUNTER A RELENTLESS PULL BACK TOWARDS THE OBSESSIVE PERFECTION OF THE

A N A L Y T I C A L G R I D



Step by step the most lighthearted & creative exploration deftly turns into grim, redeyed obsession: Silicon madness strikes again!

But couldn't this constricted state be seen just as easily as the crucial test of an Electronic Age RITE OF PASSAGE?



UPGRADE

The narrow focus of *computer rapture* is obviously the catch. As in all addictions, one particular bandwidth of human experience is isolated and blown up until it fills the entire screen. (A process often accompanied by intriguing new theologies.) *But some things never change.* Our great wisdom traditions (like Zen) rarely make a flap about *fascinating experience*, "artistic" or otherwise. Certainly no more than about, say, *peeling onions.* One can (A) Get swept up in events as Drama, or (B) Upgrade: look at any event as just another onion to peel: do it well, put it down, move on. The second path, in computer jargon, *is driven by a more streamlined source code.*

Pure Obviousness.

A deeper level of meaning which resides in **everything.**
Everything is perceived...
Known...
Through *consciousness.*
A simple shift in our attention brings this machinery of awareness into the foreground.
Consciousness is as obvious as the ocean is *(or isn't)* to a fish.
The kind of perception that can *see the ocean* is an alert, aware and utterly **receptive** perception.
It is the quiet essence of patience.
When we reach the point that it's OK even if nothing happens, then we

Come Home.

184

Page sample from book.

Mountains
are mountains,
trees
are trees,
and computers
are only
computers.

TOOLS THAT CAN HELP GET THE JOB DONE.

© 1986

Metaphysics aside, there are some other questions raised:

WHAT HATH GOD WROUGHT, ANYWAY?

YET ANOTHER TORRENT?

By extending the semi-miraculous power of the silicon chip into graphic design and page composition, the personal computer industry is handing over to us the keys to the design studio, the type house and the print shop. *"Freedom of the press belongs to those who own one."* Indeed. Visionary considerations aside, the immediate result of this Desktop Publishing revolution will be business as usual: newsletters, spec sheets and junk mail, etc.—yet another torrent of printed matter pouring into an already info-sodden world—only cheaper, quicker and slicker. Now anybody can frame any thought, great *or small*, as first class Official Writ.

LOVE LETTERS?

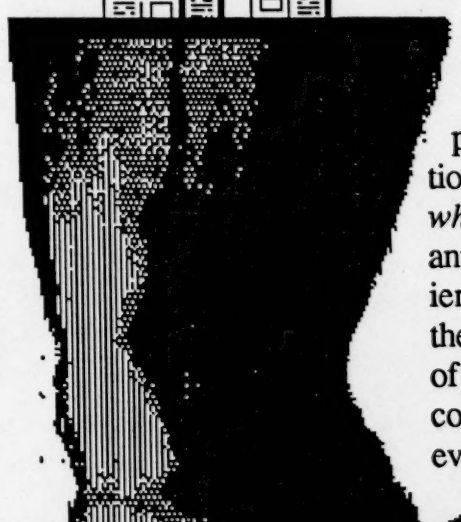
Of course more interesting applications will arise. An enterprising student could make a term paper look like a corporate annual report. Or how about a love letter done up as an ad in *Time?*

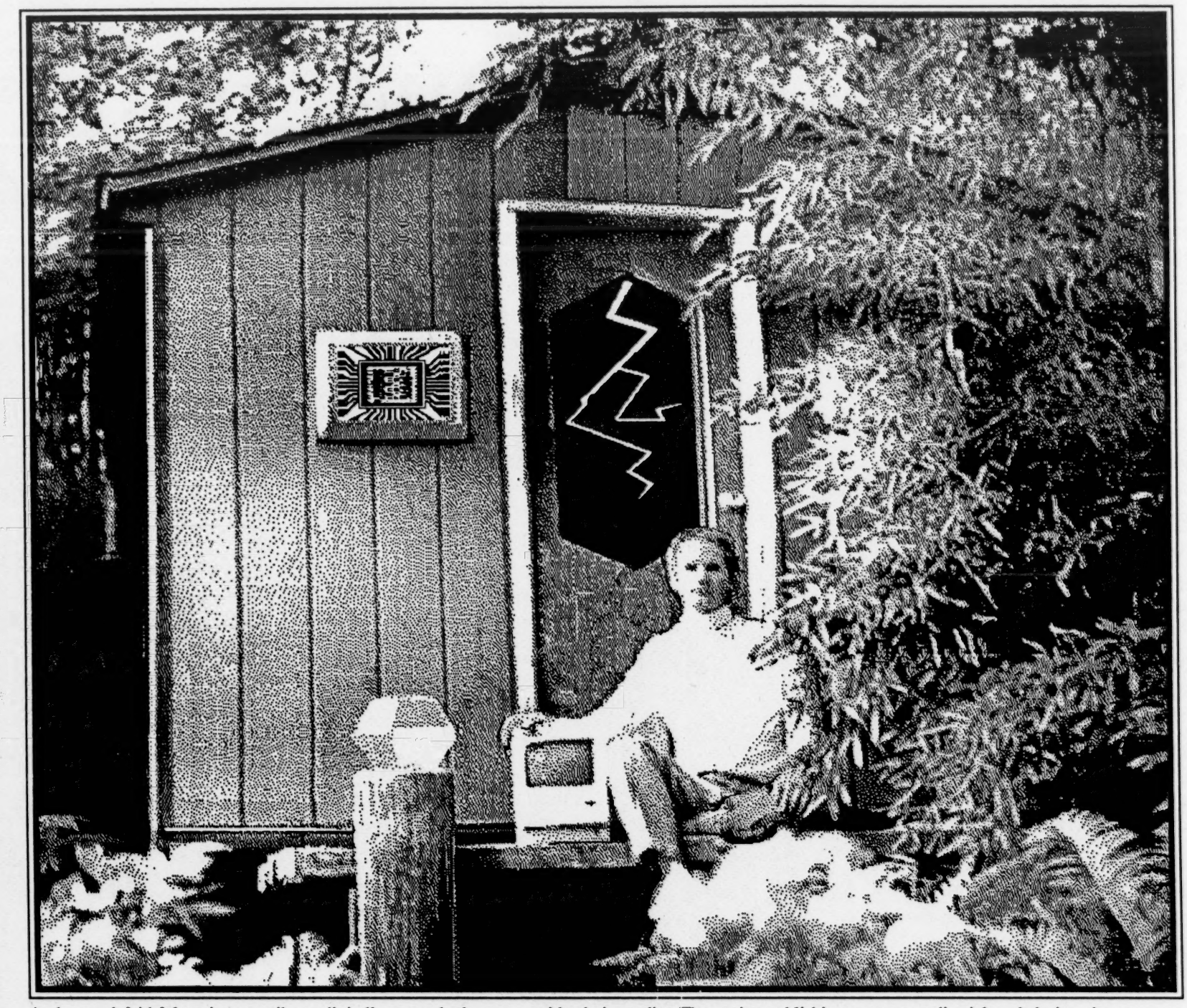
MARGINAL TYPES?

Well...that's what *I* think of. Hybridization: Official Writ meeting the Fringe. Indeed, because it is so flexible and easy to use, this equipment is a natural for marginal types-people with their words and images intertwined: Mystics, inventors, subatomic scientists, small magazine publishers and the like. Nobody has to be a technoid or an artist—just willing and a bit able.

PANDORA'S DESKTOP?

Out of *my* encounter with this high technology came a book *about* the encounter: **ZEN & THE ART OF THE MACINTOSH**. As a counterpoint to the narrative, I explored the possibilities of electronic page composition as art form. (*"...A classic example of what's escaping from Pandora's desktop,"* announced the editor of a corporate oriented publishing magazine.) Most of the graphics here came from **ZEN**. Think of them as evidence of a new process of communication, a hieroglyphic language evolving naturally out of a new tool.





Author and faithful assistant strike a digitally retouched pose outside their studio. The entire publishing system—editorial and design departments, type house and print shop—fits handily inside the tiny building, transforming it into a bona fide *Electronic Cottage*.

SO WHAT DOES IT TAKE TO GET INTO THE CLUB? The **Macintosh,** of course. Street price, for the **Plus:** $1400. Give it another megabyte of memory, say $500. You can scrounge a **LaserWriter** for $4000. It lays down an astonishing 300 dots to the inch. (Check out this type with a magnifying glass.) For creating drawings and graphics the best program now is **FullPaint.** (But a snazzer **SuperPaint** has already appeared on the horizon.) For typesetting and page composition, **PageMaker** is the standard. (But check out the cheaper competition, they're catching up.) A Koala **MacVision** video digitizer is the system's all-seeing eye. Anything you can point a home video camera at gets sucked onto your cathode ray canvas, there to be done with as you will.

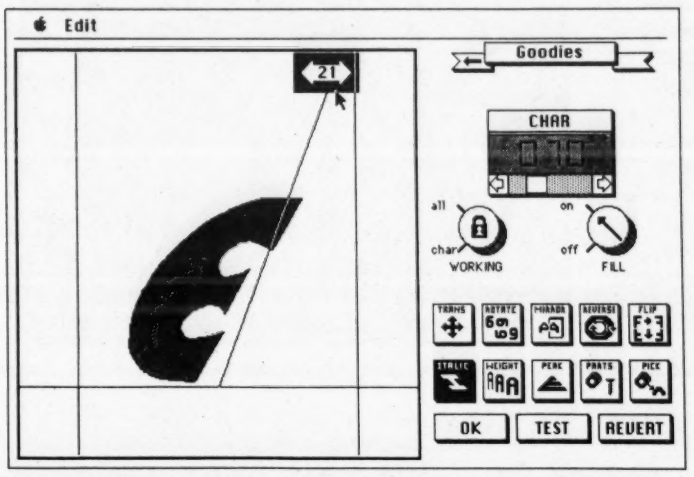
Cutting the gap between idea and execution is essential to the flow of this particular creative process, and a hard disk is what gets you to speed. With one you can stash hundreds of images and then call them up in seconds. I have a tough SuperMac **Data Frame 20.**

Shop around. The computer business is competitve and unstable. Bad for them, good for us. Prices are dropping all the time, discounts abound. Right now, you should be able to put this complete publishing system together for about 8000 bucks. Ouch. But then, think of all the wonderful things you could do with it.

BUT THEN AGAIN, *CENTER* IS STILL IN ANOTHER DIRECTION

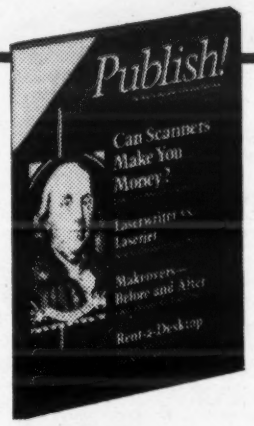
THIS ARTICLE WAS ILLUSTRATED • TYPESET • LAID OUT • PASTED UP ON A MACINTOSH & PRINTED OUT ON THE LASERWRITER

Zen & The Art of the Macintosh is available from Running Press, 125 South 22nd Street, Philadelphia, Pennsylvania 19103, for $18.



The LaserWorks Goodies window offers a number of tools for manipulating characters. Here, the E is being obliqued.
—Personal Publishing

Personal Publishing
Terry Ulick, Editor
$30/year
(12 issues) from:
The Renegade Company
P. O. Box 390
Itasca, IL 60143



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Susan Gubernat, Editor
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PCW Communications, Incorporated
501 Second Street, #600
San Francisco, CA 94107

Personal Publishing • Publish!

Desktop publishing — using a personal computer to write, typeset, design, and publish a newsletter, magazine, or book — represents a tremendous advance for small publishers. Tasks that used to take days for a handful of specialists have been compressed into page-makeup programs that enable a jack-of-all-trades publisher to control the whole process directly. For the megalomaniacs among us this is indeed good news. However it is a mixed blessing for everyone else.

For example, desktop publishing plays havoc with clear-cut job descriptions. Once you have a single software program that lets you specify page-layout formats, choose typefaces and point sizes, "pour in" word-processed copy, and manipulate illustrations in quick succession, you have a program that practically begs for a new breed of multitalented publishing workers. Where does this leave the editor who can't design, the art director who can't spell, or the typesetter who merely wants to typeset? Good question.

Having just finished pulling together an issue of a 48-page professional magazine that was produced entirely on a Macintosh computer, I can state with assurance that it can be done and it can even be fun. But it is also a staggering task that dumps the work of three individuals into the lap of one overworked person. Sometimes empowerment is hard to distinguish from embattlement.

At this juncture, then, the tools for desktop publishing seem best suited to modest tasks such as sprucing up an 8-page newsletter that was previously typewritten, or knocking out an ad sheet or flyer in a day's time. Full-scale publishing on your PC can be done, but it is still likely to call for more skills than most individual humans possess. Desktop publishing is about efficiently chewing what you've already bitten off, not about using your computer to bite off more than you can sanely chew.

Two recent magazines, one fat and one thin, have arrived to help keep things in perspective. ***Personal Publishing*** *is devoted to helping low-end do-it-yourselfers, while its thicker competitor,* ***Publish!****, throws its net widely and includes high-end, computer-aided publishing beyond the reach of most desktoppers.*

As of this writing, both magazines are relatively wet behind the ears and their editorial personalities are still in their early stages. ***Personal Publishing****, which is put out by three people in a Chicago suburb, is a Macintosh and LaserWriter production — one of the better-looking such publications I've seen. It is geared to those who are just starting out in personal publishing and is strong on explaining and illustrating the fundamentals of the field. Almost entirely staff-written, the magazine is opinionated, partisan (it favors the Mac over any other PC), and inspirational.*

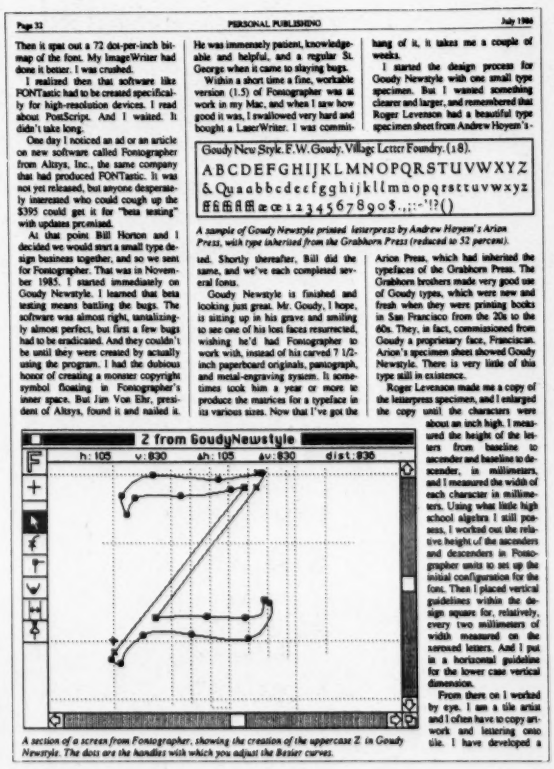
Publish!*, subtitled "The How-to Magazine of Desktop Publishing," comes from the publishers of* ***Macworld*** *and* ***PC World*** *and follows in their slick and successful footsteps. This magazine is also produced on a Macintosh but is printed out on an Allied Linotronic 300 phototypesetter, giving it a thoroughly professional look. The articles here are longer, wider-ranging, and peppered with personality profiles. From the looks of the premier issue,* ***Publish!*** *ought to give* ***Personal Publishing*** *a run for its money. If you are involved in desktop publishing, both of these magazines have valuable information to offer.*
—Jay Kinney

•

White streaks and black stripes on laser printer output can be the result of having exposed the EP (electrophotographic) cartridge to light. Don't expose the cartridge to normal room light for more than 5 minutes and never expose it to direct sunlight. White stripes or faint areas are caused by a lack of toner or by a dirty corona wire. To clean the corona wire, insert the felt tip plastic cleaner in the EP cartridge's long slot that is covered with a plastic strip. Move the cleaner back and forth several times.

•

Using a laser printer to produce anything that traditionally demands typeset quality is normally a mistake: books, magazines, formal catalogs, and wedding invitations should be typeset. Laser printing can indeed replace typesetting for many low-gloss jobs: informal newsletters, price lists, catalogs, instructional manuals, and forms. Remember, however, that traditions change. With higher-resolution laser printing and lower-cost typesetting, people may come to expect high quality in all printed material.
—Publish!


Page 32 PERSONAL PUBLISHING July 1986

Then it spat out a 72 dot-per-inch bitmap of the font. My ImageWriter had done it better. I was crushed.

I realized then that software like FONTastic had to be created specifically for high-resolution devices. I read about PostScript. And I waited. It didn't take long.

One day I noticed an ad or an article on new software called Fontographer from Altsys, Inc., the same company that had produced FONTastic. It was not yet released, but anyone desperately interested who could cough up the $395 could get it for "beta testing" with updates promised.

At that point Bill Horton and I decided we would start a small type design business together, and so we sent for Fontographer. That was in November 1985. I started immediately on Goudy Newstyle. I learned that beta testing means battling the bugs. The software was almost right, tantalizingly almost perfect, but first a few bugs had to be eradicated. And they couldn't be until they were created by actually using the program. I had the dubious honor of creating a monster copyright symbol floating in Fontographer's inner space. But Jim Von Ehr, president of Altsys, found it and nailed it. He was immensely patient, knowledgeable and helpful, and a regular St. George when it came to slaying bugs.

Within a short time a fine, workable version (1.5) of Fontographer was at work in my Mac, and when I saw how good it was, I swallowed very hard and bought a LaserWriter. I was committed. Shortly thereafter, Bill did the same, and we've each completed several fonts.

Goudy Newstyle is finished and looking just great. Mr. Goudy, I hope, is sitting up in his grave and smiling to see one of his lost faces resurrected, wishing he'd had Fontographer to work with, instead of his carved 7 1/2-inch paperboard originals, pantograph, and metal-engraving system. It sometimes took him a year or more to produce the matrices for a typeface in its various sizes. Now that I've got the hang of it, it takes me a couple of weeks.

I started the design process for Goudy Newstyle with one small type specimen. But I wanted something clearer and larger, and remembered that Roger Levenson had a beautiful type specimen sheet from Andrew Hoyem's Arion Press, which had inherited the typefaces of the Grabhorn Press. The Grabhorn brothers made very good use of Goudy types, which were new and fresh when they were printing books in San Francisco from the 20s to the 60s. They, in fact, commissioned from Goudy a proprietary face, Franciscan. Arion's specimen sheet showed Goudy Newstyle. There is very little of this type still in existence.

Roger Levenson made me a copy of the letterpress specimen, and I enlarged the copy until the characters were about an inch high. I measured the height of the letters from baseline to ascender and baseline to descender, in millimeters, and I measured the width of each character in millimeters. Using what little high school algebra I still possess, I worked out the relative height of the ascenders and descenders in Fontographer units to set up the initial configuration for the font. Then I placed vertical guidelines within the design square for, relatively, every two millimeters of width measured on the xeroxed letters. And I put in a horizontal guideline for the lower case vertical dimension.

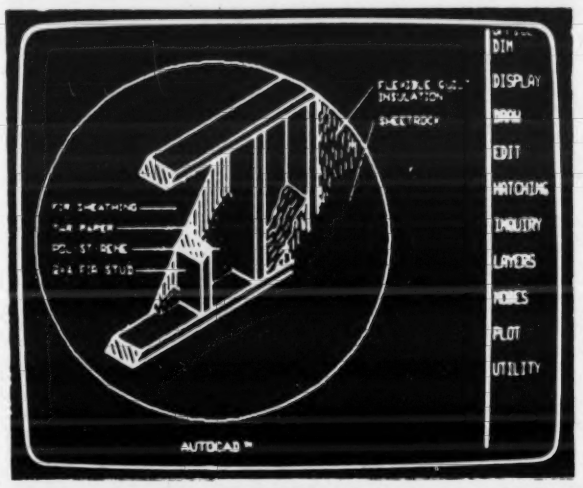
From there on I worked by eye. I am a tile artist and I often have to copy artwork and lettering onto tile. I have developed a

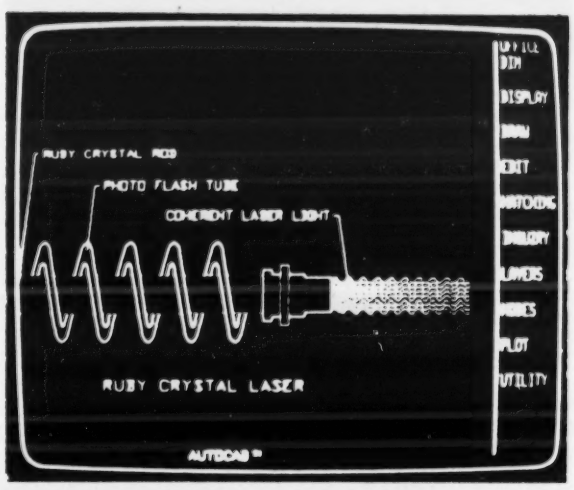
Goudy New Style. F.W. Goudy. Village Letter Foundry. (18).
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
& Qu a a b b c d e e f g g h i j k l l m n o p q r s t t u v w x y z
ff fi fl ffi ffl æ œ 1 2 3 4 5 6 7 8 9 0 $. , ; : - ' ! ? ( )

A sample of Goudy Newstyle printed letterpress by Andrew Hoyem's Arion Press, with type inherited from the Grabhorn Press (reduced to 52 percent).

A section of a screen from Fontographer, showing the creation of the uppercase Z in Goudy Newstyle. The dots are the handles with which you adjust the Bezier curves.

A Fontographer screen shows the creation of the uppercase Z in Goudy Newstyle. The dots are the handles with which you adjust the Bezier curves.





Both these drawings were created with AutoCAD, showing the program's versatility. Although it looks as if the entire drawing is on one layer, in both cases, various pieces are actually drawn on separate layers.

AutoCAD • Generic CADD • EASY3D

Good uses for computer graphics: jobs that demand constant alterations, pictures constructed with numerical precision, designs built solely from data, and graphics that make use of repeating template patterns. The best computer aided design (CAD) program for IBM-like personal computers: ***AutoCAD.***

This well-proven program has earned a remarkably good reputation for being fast, versatile, and agreeable with hundreds of customized peripherals (like color printers and digitizing tablets) that let it do practical work. It can rotate objects through 3D, scale up or down size, and "freeze" particular features of the design that you don't want to change. A typical application would be to draw an engineering or architectural project assembled out of standard components, compile a list of materials, and then amend the whole drawing to fit a substituted, smaller part. Ughhh. If you need to do this more than once, buy a computer slave.

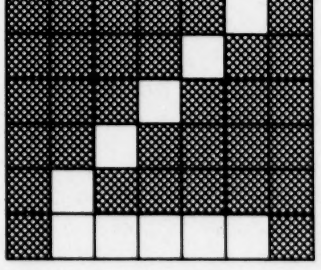
***AutoCAD** is an expensive professional system. You can get an abbreviated jolt by plugging in **Generic CADD**, a $100 clone that similarly sketches, but without 3D rotation. The best performer on the Macintosh is EASY3D, which does. Picture processing, like word processing, will make a bad design quickly bad, or a good design quickly over.* —*Kevin Kelly*

AutoCAD: $300-$2,750 from Autodesk, Inc. (2320 Marinship Way, Sausalito, CA 94965; 415/331-0356).
Generic CADD: $99.95 from Generic Software (8763 148th Avenue NE, Building C, Redmond, WA 98052; 206/885-5307).
EASY3D: $104 from Enabling Technologies (600 South Dearborn/Suite 1304, Chicago, IL 60605; 312/427-0408).

Microcomputer Graphics

I am using ***Microcomputer Graphics*** *to learn the fundamentals of two- and three-dimensional computer graphics. This book is for beginners. It takes you from programming the computer to drawing a line, to drawing objects that appear solid. Along the way you learn about 2D and 3D object scaling, rotation, and translation; line clipping; 3D projection; and hidden-line and hidden-surface routines. Each step is short and succinctly explained with lots of illustrations.* —*Charlie Richardson*

Microcomputer Graphics
Roy E. Myers
(for the Apple Computer)
1982; 282 pp.
(for the IBM PC)
1984; 268 pp.
$14.38 each
(postpaid) from:
Addison-Wesley
Publishing Co.
1 Jacob Way
Reading, MA 01867
or Whole Earth Access

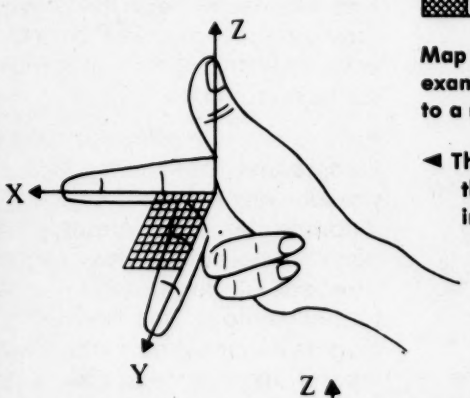


Display

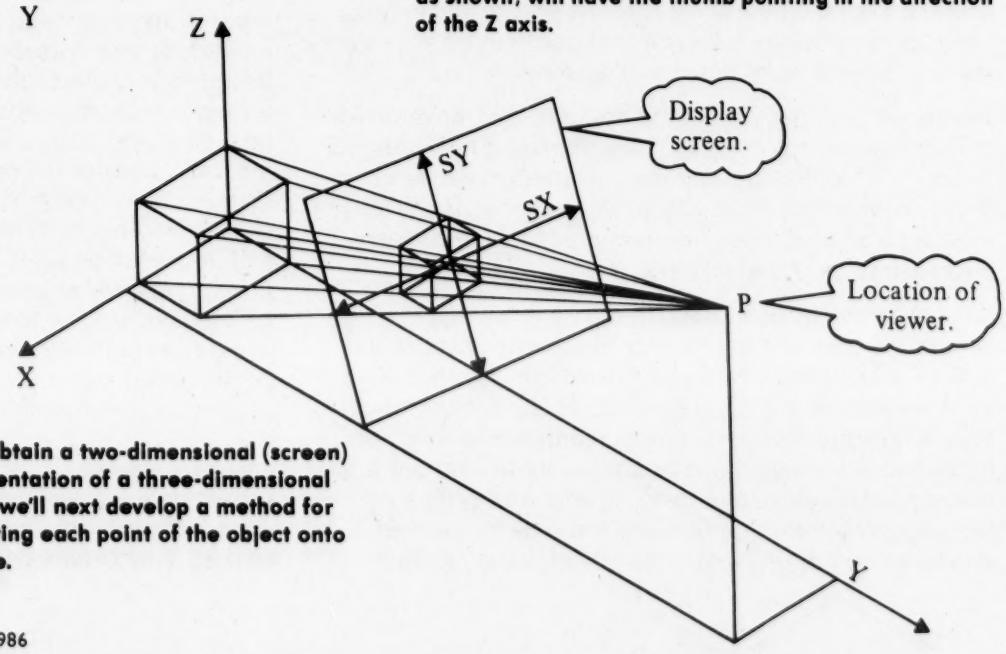
Bit Pattern (reversed)

Binary	Decimal
0111110	62
0100000	32
0010000	16
0001000	8
0000100	4
0000010	2
0111110	62

Map the character or symbol on a grid; 7 x 7 works well. For example, to obtain the letter "Z," convert each of the bit patterns to a number code then POKE the bit pattern into memory.



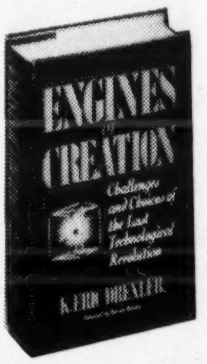
◄ The rectangular (or Cartesian) coordinate system requires three mutually perpendicular axes. The X and Y axes used in the two-dimensional system are augmented by a Z axis through the origin, perpendicular to the XY plane. This Z-axis orientation identifies a right-hand system, so called because a right hand with first and second fingers pointing in the direction of the X and Y axes, as shown, will have the thumb pointing in the direction of the Z axis.



► To obtain a two-dimensional (screen) representation of a three-dimensional object we'll next develop a method for projecting each point of the object onto a plane.

Engines of Creation

The Last Technological Revolution is upon us: "nanotechnology" — the science of building molecules to order. What this might mean for good or bad is enthusiastically examined in this lively book. There is some gee-whizzing; how could there not be when the potentials include cell repair, disease reduction, and life extension? Ebullience is balanced by a serious discussion of the potential for horrifying weaponry, and the social disorder that could result from thoughtless incorporation of nanotechnology into an unprepared populace. The book is remarkably wide-visioned and comprehensively based: most unusual for this sort of thing. Future-reading at its best. —J. Baldwin



Engines of Creation
K. Eric Drexler
1986; 298 pp.
$17.95 postpaid from:
Doubleday & Co.
Direct Mail Order
501 Franklin Avenue
Garden City, NY 11530
or Whole Earth Access

•

Not human whims but the unchanging laws of nature draw the line between what is physically possible and what is not — no political act, no social movement can change the law of gravity one whit. So however futuristic they may seem, sound projections of technological possibilities are quite distinct from predictions.

•

The simplest medical applications of nanomachines will involve not repair but selective destruction. Cancers provide one example; infectious diseases provide another. The goal is simple: one need only recognize and destroy the dangerous replicators, whether they are bacteria, cancer cells, viruses, or worms. Similarly, abnormal growths and deposits on arterial walls cause much heart disease; machines that recognize, break down, and dispose of them will clear arteries for more normal blood flow. Selective destruction will also cure diseases such as herpes in which a virus splices its genes into the DNA of a host cell. A repair device will enter the cell, read its DNA, and remove the addition that spells "herpes."

•

The Evolution of Design
It might seem that design offers an alternative to evolution, but design involves evolution in two distinct ways. First, design practice itself evolves. Not only do engineers accumulate designs that work, they accumulate design methods that work. These range from handbook standards for choosing pipes to management systems for organizing research and development. And as Alfred North Whitehead stated, "The greatest invention of the nineteenth century was the invention of the method of invention."

•

Richard Dawkins calls bits of replicating mental patterns "memes" (*meme* rhymes with *cream*). He says "examples of memes are tunes, ideas, catch-phrases, clothes fashions, ways of making pots or of building arches. Just as genes propagate themselves in the gene pool by leaping from body to body [generation to generation] via sperms or eggs, so memes propagate themselves in the meme pool by leaping from brain to brain via a process which, in the broad sense, can be called imitation."

•

To visualize an advanced cell repair machine, imagine it — and a cell — enlarged until atoms are the size of small marbles. On this scale, the repair machine's smallest tools have tips about the size of your fingertips; a medium-sized protein, like hemoglobin, is the size of a typewriter; and a ribosome is the size of a washing machine. A single repair device contains a simple computer the size of a small truck, along with many sensors of protein size, several manipulators of ribosome size, and provisions for memory and motive power. A total volume ten meters across, the size of a three-story house, holds all these parts and more. With parts the size of marbles packing this volume, the repair machine can do complex things.

But this repair device does not work alone. It, like its many siblings, is connected to a larger computer by means of mechanical data links the diameter of your arm. On this scale, a cubic-micron computer with a large memory fills a volume thirty stories high and as wide as a football field. The repair devices pass it information, and it passes back general instructions. Objects so large and complex are still small enough: on this scale, the cell itself is a kilometer across, holding one thousand times the volume of a cubic-micron computer, or a million times the volume of a single repair device. Cells are spacious.

•

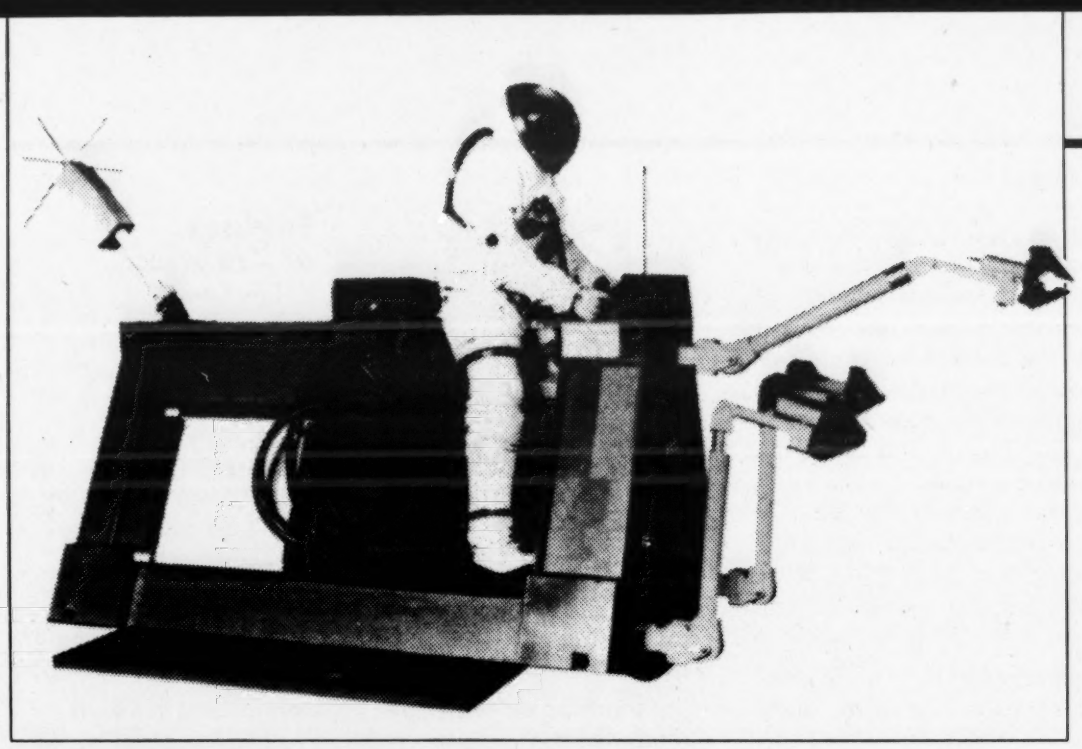
Gregory Bateson once stated that "no organism can afford to be conscious of matters with which it could deal at unconscious levels." In the organism of a democracy, the conscious level roughly corresponds to debate in the mass media. The unconscious levels consist of whatever processes ordinarily work well enough without a public hue and cry. In the media, as in human consciousness, one concern tends to drive out another. This is what makes conscious attention so scarce and precious. Our society needs to identify the facts of its situation more swiftly and reliably, with fewer distracting feuds in the media. This will free public debate for its proper task — judging procedures for finding facts, deciding what we want, and helping us choose a path toward a world worth living in.

•

Rabbits replicate, but they require prefabricated parts such as vitamin molecules. Getting these from food lets them survive with less molecular machinery than they would need to make everything from scratch. Similarly, a mechanical replicator using prefabricated chips could be made somewhat simpler than one that made everything it needed. Its peculiar "dietary" requirements would also tie it to a wider "ecology" of machines, helping to keep it on a firm leash. Engineers in NASA-sponsored studies have proposed using such semireplicators in space, allowing space industry to expand with only a small input of sophisticated parts from Earth.

•

Human institutions are evolved artificial systems, and they can often solve problems that their individual members cannot. This makes them a sort of "artificial intelligence system." Corporations, armies, and research laboratories all are examples, as are the looser structures of the market and the scientific community. Even governments may be seen as artificial intelligence systems — gross, sluggish, and befuddled, yet superhuman in their sheer capability. And what are constitutional checks and balances but an attempt to increase a government's reliability through institutional diversity and redundancy? When we build intelligent machines, we will use them to check and balance one another.



Robotics
Marvin Minsky, Editor
1985; 317 pp.
$19.95
postpaid from:
Doubleday and Company
Direct Mail Order
501 Franklin Avenue
Garden City, NY 11530
or Whole Earth Access

Robotics

Edited by an artificial intelligence pioneer, this anthology covers all the bases: the history of automatons, artificial common sense, sensors, human-machine partnerships (cyborgs), industrial robots, and the effects of robots on society. Here is the best starting point for a non-tinkerer who wants to know what robotics is about, and how it might change the world. —*Art Kleiner*

•

At some point in the future someone would go to work by slipping on a comfortable jacket lined with a myriad of sensors and musclelike motors. Each motion of his arm and fingers would then be reproduced at another place by mobile, mechanical hands. Light, dextrous, and strong, those remote mechanical hands have their own sensors, which will transmit what's happening back to the worker so that he will seem to feel whatever the remote hands may touch. The same will be done for the motions of the head and eyes, so that the operator will seem to see and sense what's happening in the other workplace. Once we can do such things, it will be another simple step to give those remote presences different strengths and scale of size. These remote bodies can have the brute capacity of a giant or the delicacy of a surgeon. And, using these information channels, an operator could be anyplace — in another room, another city, another country, even out on a space station orbiting the Earth.

•

A 1980 census of robots, taken by Bache Halsey Stuart Shields, Inc., showed that the United States had 3,000 of them. . . . The entire Soviet Union had only 25, and

▲ **Zero-g cowboys rode this three-armed, rider-controlled "space horse," one of a series of experimental vehicles built for NASA.**

these were evidently experimental devices, but Poland had 360. . . . The true homeland of the robot appears to be Japan, with 10,000 in the census, more than the rest of the world combined.

•

In 1942, in a story in *Galaxy Science Fiction* titled "The Caves of Steel," Isaac Asimov set forth his Three Laws of Robotics:

- A robot may not injure a human being, or through inaction allow a human being to come to harm.
- A robot must obey the orders given it by human beings except when such orders would conflict with the First Law.
- A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

•

The coherence that your models of yourself, your inner workings, and your relations with others brings to your repertoire of routine patterns of behavior is called your personality. Without personality, not only would you be boring, but you'd have no interests, no direction, no reliable structure to your life. Because of this, the processes by which people develop their self-models are central to an understanding of the architecture of the mind. Robot minds aren't likely to be any different. For everyday needs, people use surprisingly simple models of themselves, revolving around a single indivisible entity, *me*. What psychiatrists speak of as the Self. The Self doesn't correspond to any particular part of the mental architecture; rather it is a general concept that one constructs just as one constructs a general concept of tigers ►

The Robot Experimenter

The only regular source of information, besides ***Radio Electronics*** *magazine, for people who are building their own robots. It deserves to survive and thrive.*
—*Richard Prather (Homebrew Robotics Club)*

•

◄ Several years ago, PA Technology of Princeton, New Jersey, developed a prototype robot chocolate decorator system that could recognize different types of chocolate candies on sight.

The premise behind the machine is that although the chocolate manufacturing process is highly automated, final decoration and packing is often very labor-intensive. The goal was to develop a robot/vision system that could not only find a chocolate moving down a conveyor belt, but also recognize the particular type of chocolate (Hazelnut Slice, Rum Marzipan, Walnut Truffle, etc.) and then adorn it with an identifying pattern.

Robot Experimenter
Raymond Cote, Editor
$24/year
(12 issues) from:
Robot Experimenter
P. O. Box 458
Peterborough, NH
03458-0458

or the phone company. The difference, psychologically, is that your opinions about your Self are of much greater concern than your opinions about the phone company, and so motivate many more of your actions. People persist in thinking that they have unitary Selves despite the insistence of psychologists and computational theorists that there is much more structure to the mind. This is because, in the average everyday situation, there is no more reason to think about the inner structure of your mind (Freud's notions of ego, superego, and id, for example) than there is to think about the crystalline structure of the metal in your fork during breakfast.

•

A kind of pocket computer (perhaps shaped and worn like glasses) is programmed with the universals of human mentality, your own genetic makeup, and details of your life easily accessible. It carries a program that makes it an excellent mimic. You carry this computer with you through the prime of your life. It diligently listens and watches, and perhaps monitors your brainwaves, and learns to anticipate your every move and response. Soon it is able to fool your friends on the phone with its convincing imitation of you. When you die, it is installed in a mechanical body to smoothly and seamlessly take over your life and responsibilities.

•

Manual Manipulator — a manipulator worked by a human operator.

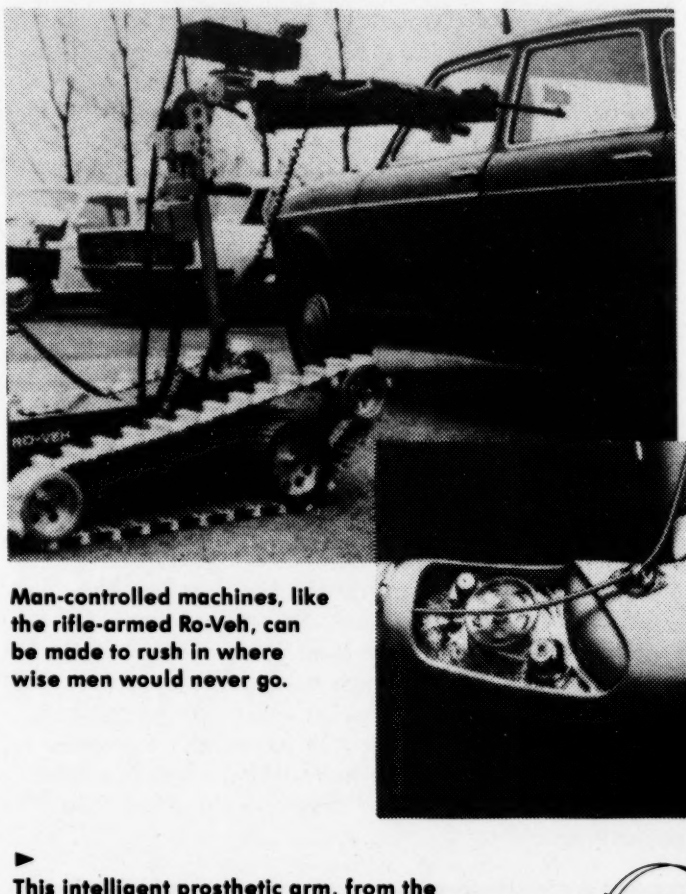
Fixed Sequence Robot — a manipulator that performs successive steps of a given operation repetitively according to a predetermined sequence, condition, and position. Its set information cannot be easily changed.

Variable Sequence Robot — a manipulator similar to the fixed sequence robot, but whose set information can be changed easily.

Playback Robot — a manipulator that can reproduce operations originally executed under human control. A human operator initially operates the robot to feed in the instructions — relating to sequence of movement, conditions, and positions — which are then stored in the memory.

NC (Numerically Controlled) Robot — a manipulator that can perform a given task according to the sequence, conditions, and positions commanded via numerical data, using punched tapes, cards, or digital switches.

Intelligent Robot — a robot that can itself detect changes in the work environment, using sensory perception (visual and/or tactile), and then, using its decision-making capability, can proceed with the appropriate operations.



Man-controlled machines, like the rifle-armed Ro-Veh, can be made to rush in where wise men would never go.

►

This intelligent prosthetic arm, from the University of Utah, converts fine muscle contractions into delicate limb movement.

Basic Robotic Concepts

Generally agreed upon as the best overall technical book. It's designed to educate people about the various problems in robotics — balancing the machine, vision systems, motors, torque curves, wheels versus legs, and programming the intelligence. —*Art Kleiner*

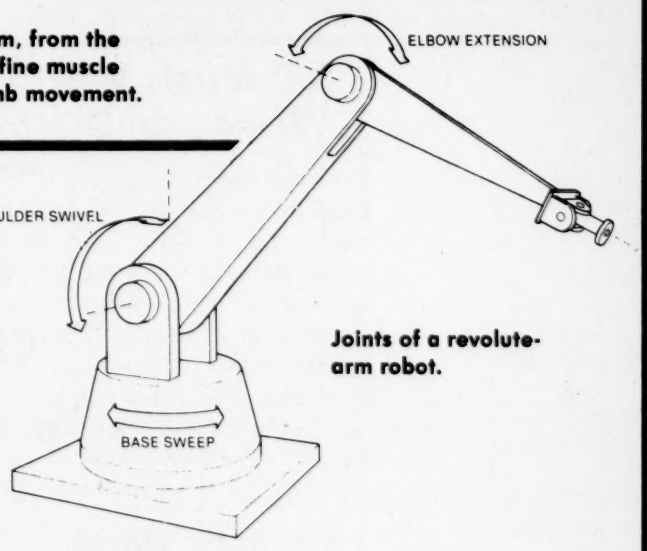
[Suggested by Richard Prather]

Basic Robotic Concepts
John M. Holland
1983; 270 pp.
$19.95
($22.45 postpaid) from:
Howard W. Sams & Co.
4300 West 62nd Street
Indianapolis, IN 46268
or Whole Earth Access

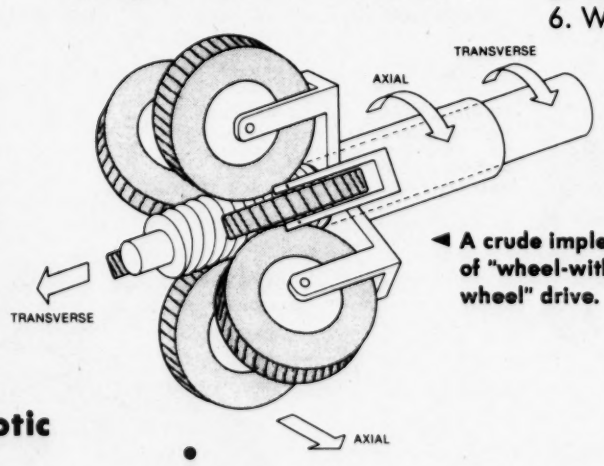
•

A jointed arm robot with six joint movements:

1. Base sweep
2. Shoulder swivel
3. Elbow extension
4. Wrist pitch
5. Wrist roll
6. Wrist yaw

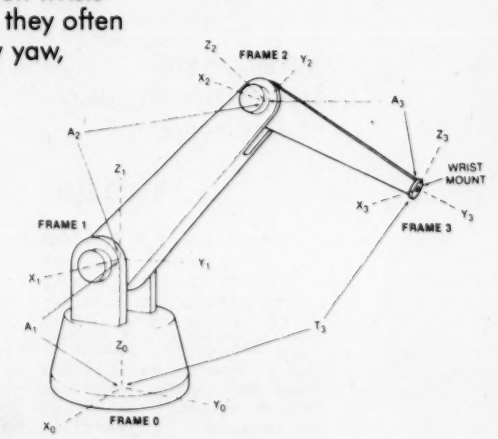


Joints of a revolute-arm robot.



◄ **A crude implementation of "wheel-within-a-wheel" drive.**

Like most robots, these two basic types are often made in a modular fashion. When wrists are present, they often do not allow yaw, or even roll.



Transforming coordinate frames.

•

The Omni Drive

Perhaps one of the most esoteric of the wheeled drive systems is the "wheel-within-a-wheel" structure. It has been proposed that Ezekiel may have observed this type of carriage on an extraterrestrial craft. If this is so, he did not have much more luck in finding a way to describe it than I have had! A very crude implementation of this concept is shown here. The assembly is capable of driving in any direction without changing its directional orientation.

Electronic Music

There are two clear winners among the many, many electronic musical instruments on the market: Casio's CZ-101 and Yamaha's DX-7. If your budget allows, buy both. If not, buy the first one, then the other later when you can afford it. I recommend these partly because they are very capable instruments with a wide variety of sound possibilities and partly because these are the most widely purchased instruments in the market.

Each offers customizable sound capabilities. Each lets you play several different sounding noises at the same time (polyphonic). Each has many preset sounds, so you can play right away without having to create your own tones. The differences? The more expensive DX-7 has more buttons and a bigger, heftier keyboard while the CZ-101 has fewer control buttons and that "inexpensive" feel. Both create their sounds using the FM synthesis method, yet each has its characteristic albeit subtle color.

Both the DX-7 and CZ-101 are tremendously popular. The former has single-handedly deposed the lead guitar from the limelight role in popular music — most serious musicians own or have access to a sturdy DX-7. The CZ-101 offers FM synthesis for a small fraction of the DX-7's price and is generally available from mass merchandisers at a discount or on a time-payment basis. If recommending the two most ubiquitous instruments seems to be superficial, let me reassure you that the reverse is true. Machines should be as transparent as possible. The machine should allow possibilities, not limit them. The best computerized machine (and you can't walk into a music store any longer to play a keyboard unless it is connected to a computer) is that which has the most and the best software written for it. If you want the greatest flexibility, you must choose the machine which hosts the greatest amount of software development — the most popular machine.

Yamaha DX-7 (inset: Casio CZ-101).

Yamaha DX-7
$2095
Information **free** from:
Yamaha International Corporation
P. O. Box 6600
Buena Park, CA 90622

Casio CZ-101
$349
Information **free** from:
EMP
2915 South 160th Street
New Berlin, WI 53151

This monopolist philosophy makes it possible for developers to pour in money to create software imitations of a grand piano, a bassoon, or the sound of the sea. Both of these keyboards let you pick and choose among the latest sounds of session musicians working in the big studios for the big record labels. Simply put, the DX-7 and CZ-101 offer you the widest choices for synthesized music.
—Jim Stockford

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• Wisconsin Discount Stereo

The two cheapest mail order sources. Unlike most mail order consumer electronics stores, J & R offers three comprehensive catalogs — on computers, stereos, and videotapes. Between them you'll find home security devices, musical keyboards, telephones, blank tapes, copiers, watches, and shavers. Wisconsin Discount Stereo is often less expensive but has no catalog. For both, first visit an electronics store near you and get familiar with the features — then compare prices and shop mail order via their 800 number. *—Saul Feldman*

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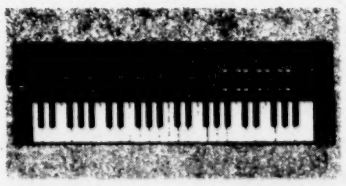

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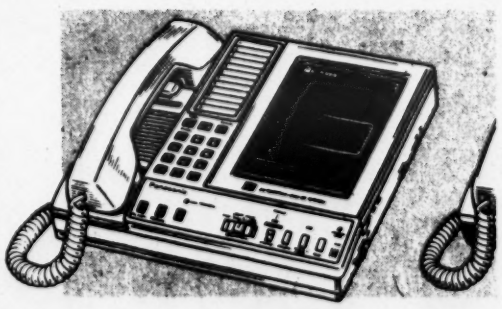

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GOOD MOVIES

by Sheila Benson

'ROUND MIDNIGHT

THE MISSION

DOWN BY LAW

Director Bertrand Tavernier's sublime **'ROUND MIDNIGHT** is the first feature about jazzmen to be made in their own rhythms, with repeated themes, long sustained passages and a perfect, delicate gravity about it. Very loosely inspired by the relationship of Bud Powell and Frenchman Francis Paudras, it is a story of the late-fifties Paris days of an American tenor sax man (played by the great Dexter Gordon) and a French graphic artist (Francois Cluzet) who become, in a way, each other's life lines, although it may seem as though it is only the American who is being saved.

Films have rarely been good at an inside look at the lives of musicians. (Only the almost-unknown little Chicago-made feature, **Stony Island**, ever *showed* us why musicians make music.) This is an exception: with consummate tact, intelligence, and passion, and with the presence of great musicians, including Herbie Hancock, Bobby Hutcherson, Wayne Shorter and Gordon, **'Round Midnight** becomes the personification of Dizzy Gillespie's words about be-bop: "It is the most serious music ever made in America and a lot of people died for it." And Gordon, moving serenely to his own inner rhythms, gives a magnificent portrayal, the sort which demands but all too rarely gets Academy Awards.

★ ★ ★

Perhaps the only hint we'd have that **PEGGY SUE GOT MARRIED** held anything out of the ordinary in store for us is the fact that Francis Coppola directed it, but it is this fall's unassuming surprise. A 43-year-old, reluctantly separated wife and mother, Peggy Sue (Kathleen Turner) travels back in time, to find herself in 1960, a high school senior who knows *then* what she learned about *now.* Apparently stuck reliving her life from that point on, should she remake the same mistakes, including marriage to her high-school sweetheart (Nicolas Cage, who will develop a roving eye), or muck with destiny? You might be able to predict the rush of fun and nostalgia as the Sixties are recreated down to the last lime-green leisure suit and Buddy Holly chord, but nothing prepared me for how moving or how deeply affecting **Peggy Sue** became. Outstanding, along with Turner and Cage — in a risky, eventually successful characterization — is Barry Miller as the "four-eyed worm" who's gone on to be this small Northern California town's biggest success.

★ ★ ★

DOWN BY LAW gets better, funnier each time you see it, mostly because of Italian comedian/monologist Roberto Benigni. He plays the one of three New Orleans jail cellmates with a cheerfully positive attitude; musician-actors John Lurie and Tom Waits, innocent of everything but monumental cupidity/stupidity, are hilarious, belligerent downers. In his first film since **Stranger Than Paradise**, director Jim Jarmusch has again made a "journey" movie with comments about missed communication via a protagonist who speaks less-than-certain English; however, **Down By Law** is even more of a deadpan romantic fairy tale. And Benigni is a true discovery; his routine about a "cunning" rabbit (turning on the spit even as he speaks, its furry socks still intact), his mother, and his childhood are to sound film what the routines of Buster Keaton were to the silents.

★ ★ ★

If we didn't already know from **The Killing Fields** that director Roland Joffe is one of our decade's great directors of action, then **THE MISSION** is here to establish that fact, firmly and with no equivocation. With Jeremy Irons and Robert De Niro as its leads, **The Mission** is a thunderingly awesome physical production, set in 1750, on and near the waterfalls known as the Cataratas del Iguazu in Brazil and centering on a Jesuit mission which becomes a ploy in a battle for influence between Spain and Portugal.

Robert Bolt's fusty screenplay is at the heart of the film's problems, but you can appreciate his dilemma: having to clarify and explain little-known moves in mid-eighteenth-century religious skirmishes. This may mark the first time De Niro's acting has seemed resolutely modern and unsuited to its period — an unnerving sight, but Irons more than makes up for this with a burningly intelligent and charismatic performance. It may have problems, but **The Mission**, which was given the Golden Palm at Cannes this year, is sumptuous, jaw-dropping and resoundingly cinematic. ■

PEGGY SUE GOT MARRIED

The World Information Economy

Stewart Brand interviews

Peter Schwartz

and Jay Ogilvy

Money, in essence, is a type of information. And in the place where we are headed (what magazines like to call the global village), the equation flips, and information sometimes behaves like money. This little-perceived relationship is one aspect of a global Financial and Communications Complex that has been knitting itself together so rapidly that nobody understands how it works.

There are some clues we should probably pay attention to. Fashion — rapid breathless cycles of fashion — rather than being a symptom of decadence seems to be a communication mechanism in this new ecology. The meaning of debt is unclear. The only voices I've heard that have enlightened this cloud of unknowing have come from this interview with Stewart Brand, Peter Schwartz, and Jay Ogilvy. Peter Schwartz is formerly head of Business Environment, part of the Strategic Planning Department at Royal Dutch Shell Group in London. Jay Ogilvy is Director of Research at SRI International, where he worked on formulating the VALS marketing research tool. Stewart Brand was in London consulting for Shell and organizing his new book, The Media Lab, *for which this interview was done. It was taped in April, 1986 at the Charles Hotel, London, in one hour.* —*Kevin Kelly*

STEWART BRAND: The topic is communication and technology. What are they doing and what are the consequences? Peter, you mentioned to me four things that are generating a new game around the world.

PETER SCHWARTZ: Yes. These four things are finance, recorded entertainment, computing, and telecommunications. They are intersecting. Our technology has progressed to a point where the driving force of our wealth, that is our wealth-creation process, increasingly has to do with information. Not too long ago the *manufacture of things* like textiles and steel and automobiles were the driving structures out of which industrialism emerged. The winners in that game profited from mass production, economics of scale and low-cost resources. Now, the value added in transforming material is related to our capacity to *understand and use information* in various ways. If that's the case, what we want to know is, how are the rules of this new game going to be written?

The principal technologies involved are telecommunications and computing. And the two great systems that will use them predominantly are *finance* and *recorded entertainment.* By recorded entertainment I mean television, movies, music, and so on, on a worldwide scale. I single out these two systems because, in both cases, the markets and products are becoming increasingly global and accelerated by rapidly advancing technology. This game feeds on itself. Toward the end of the '70s, foreign exchange transactions hit an exponential curve at $3 trillion. By 1984, I think it was $30 trillion. The newest figures show $65 trillion — another doubling since last year, and twenty times the annual U.S. Gross National Product. I'm sure this growth is not permanent, but it is several times the world GNP.

This acceleration began with the 1973 oil price crisis and the breakdown of the Breton Woods exchange rate agreement, leading to a more volatile dollar. Enormous amounts of money flowed from oil importers to oil exporters and back out again into the international financial system.

If the dollar only moves a tenth of a penny over three weeks, that is no game to play. But if it moves three or four cents in a day and you've got a billion bucks here and five billion bucks there, you can make serious money in a series of incremental moves. So we decide to play. However, we must have an adequate computer system to keep track of where our money is. The medium of communication for all this electronic money is essentially a computer

The World Information Economy

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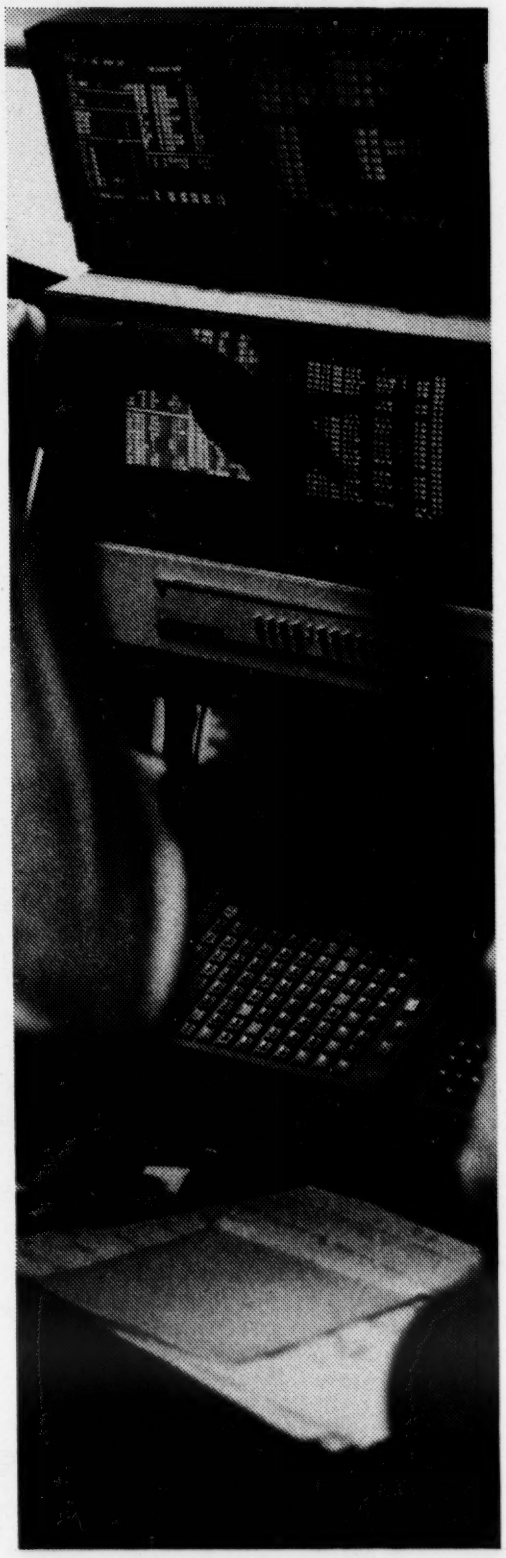
in one country talking to a computer in another country, pouring out vast volumes of data very, very rapidly. It's a 24-hour-a-day, worldwide, communication game, and information technology is what makes it possible.

For example, let's say we decide to play the interest rate arbitrage game. We have an enormous amount of cash, and we can put it anywhere we want. We allow our cash to be used to cover the differential between money that Citibank of Tokyo wants to lend to Citibank of Paris, and that difference is maybe a tenth of one percent on one billion dollars in a day. Our profit is quite trivial, but there's virtually *no risk*. Then we can put it over here, and then in the morning move it over there. In the afternoon we move it again, and go around the world 24 hours a day, making a few tens of millions in the absolutely risk-free game of allowing people to use our money to handle short-term differences measured in hours and sometimes even minutes. It may just be the difference of 14.27 percent interest versus 14.28 percent interest.

The physical activity of the world is not driving the value of currencies any longer. It's all this money sloshing around the world — a classic case of the tail wagging the dog. In fact, the dog has really become quite trivial. The actual money needed for physical trade is now a minute part of the dominant movement of money in the world. In this case the movement of money itself has become the game, and that shift is consequential in several ways. First, it's an extremely difficult and unstable system to manage. The fluidity and scales are so large that the U.S., the biggest economy in the world, has a GNP only 5 percent of that figure. Second, the scope for any individual country to manage its own economic affairs is so much less because these financial exchange flows are so much greater than industrial trade flows. And third, we don't understand it. At Royal Dutch Shell we've just done an analysis of the new kinds of financial instruments, and what is absolutely clear to me is that it is a system out of control. Nobody really understands it. People innovate new mechanisms — a new way of financing or selling a particular kind of security or a different way of coaggregating money and reselling it. The mechanisms are commercially viable, but nobody knows what the consequences are. And historically, the catalyst which has precipitated a depression has been the collapse of the meaning of money. That's what happened last time — money lost its meaning. When these mechanisms go completely out of control, there is enormous danger. ►



Take, for example, the whole Latin American debt crisis. One reason it occurred was the significant interbank lending which was in effect involuntary. Mechanisms had been set up for moving money from here to there, and no one questioned them. Over the course of two or three months, a lot of short-term money — a few tens of billions dollars — suddenly flowed into Brazil. Their debt went from about $60 billion to $90 billion in six months and they didn't even know it. Nobody knew it. It just went whoosh, and suddenly they were in hock. The interest rates had gone up on short-term debt, and they were paying all this short-term money and didn't even know it. No individual bank, no one could observe it. When international bankers stopped to take a look, they said, "My God, look at all this money in Brazil!" It wasn't that someone said, "I want to go out and borrow a bunch of money." It was just one bank lending to another bank to cover this or that trade credit, and it just began to flow without anyone raising questions.

SB: Is there an intelligent way to manage this global monetary system?

PS: This problem is being taken seriously by policymakers such as The Group of Thirty, whose members include former heads of the World Bank and big private banks as well as a few economists. The big question is, what's the future? The Federal Reserve Bank oversees all the money in the United States. The federal government says "We control the currency, therefore we've got the lever on the system." And that's true for virtually every individual sovereign country in the world. But I don't think a similar mechanism could exist internationally. Not for a long time to come. Unless we develop a genuine international currency with a supervisory body to whom sovereign nations would willingly give up a part of their sovereignty. But most people would agree that such an event is unlikely. What is possible is a far more complex structure involving multiple currencies with the interplay of several large institutions. Perhaps the current International Monetary Fund, the Bank of International Settlements and the World Bank together with the central banks of the three major industrial countries — Germany, Japan, and the United States — will form some kind of relatively tight management confederation (right now there's a loose confederation — they talk to each other but it's very informal). They would establish: (a) exchange rate regimes, and (b) those criteria that will determine the validity of the money, i.e. essentially what amounts to credit worthiness. They would decide whether investments were real or phony, and what the meaning of a particular money is. Right now, all this electronic money doesn't really exist because it is not in any way connected to anything tangible.

A big issue will be to what degree should there be independence and coordination. It may be different for the dominant countries. The non-dominant countries may be much freer to have a higher or lower inflation rate, whereas the Big Three may have very little freedom. They may have to be tightly coupled.

I think this will occur in a five-to-ten-year time frame. We're already beginning to see a movement in that direction. The U.S. has just shifted its position drastically. Until recently it voiced absolute opposition to any increased role for the international institutions, or for any structure of exchange rates and financial regimes at all. Period. Free markets ruled entirely, and the international institutions were considered a bunch of commies run by the European socialists. We were not interested in participating. But now we can see how our domestic economy is profoundly affected by the consequences of being in a game and not taking a conscious role. So we've decided it's important that the game be structured appropriately, and now we will play to help structure the game. That was the shift from Don Regan to Jim Baker at Treasury.

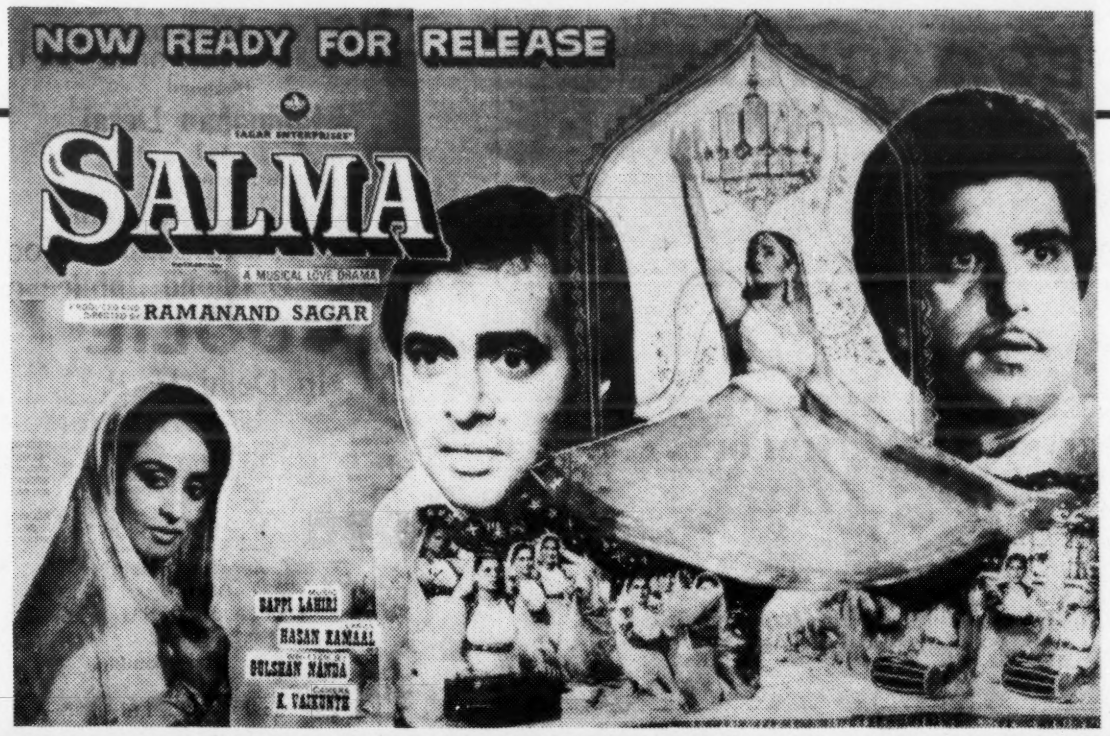
SB: A shift from, "We don't want to play because it's a fucked game," to, "We want to play and we want to dominate."

PS: It hasn't gone that far, but that's the reality. First of all, if we don't play there is no game. If we do play, we are still the biggest gorilla on the block by a long way. Eighty percent of the world's financial transactions are still dollar-based. Our lever on the system is so large, even if we don't want to exercise it, that they can't play without us. And even if we wanted to be generous, we couldn't be generous with the power. There isn't any choice. The U.S. is the key player, and the game requires our participation.

SB: So how about electronic entertainment — television, movies, music, radio?

PS: Here the forces are somewhat different, but interact. They have to do basically with three things. One, is market demographics. The biggest market for recorded entertainment is young people — a *huge* fraction of the market. The numbers worldwide are increasing at a staggering rate. Look at Mexico, where 50 percent of the population is under 15. Two, the technology of both recording and distribution is changing — everything from direct-broadcast satellite to compact disc-video. The world market is now accessible in a way it wasn't ten years ago. Third, what you now have is not only a worldwide market, but a worldwide series of sources. In terms of total volume of cash and total films made, the largest film industry in the world is India. By far. The second largest is Hong Kong. The United States is third.

You can go into a video shop in Lagos, Nigeria, and see walls of films, 90 percent of which you've never seen in any video store in the United States.



Hindi cinema poster
The largest film industry in the world is in India, a lucrative communication business tapping a global market.

Fidelity stock trading room
The engineer used to be the hero. Now he is needed merely to generate cash which the trader can use to really make money.

First of all they're not in English; second, they're rotten films; third, most of them are adventure, comedy, love stories, dumb sorts of things. A lot of them are horror or Indian westerns. Indians *love* westerns. Hundreds and hundreds of Indian cowboy movies, with Indian Indians playing American Indians and Indian Indians playing American cowboys. All speaking in Hindi with English subtitles. It's really quite funny. And quite profitable.

There's a vast, extremely lucrative entertainment business going on that we don't even see. I've tried to get some idea of the volume, but have not been able to find any global numbers. The U.S. projects a $25 billion gross for the next five years for the total electronic entertainment industry. And the technology driving this industry is the same increasingly sophisticated computing and telecommunications technology that is pushing finance. These two industries, finance and electronic entertainment, the greatest *users* of these technologies, are establishing the rules of the game.

The linking infrastructure is going to be a function of what finance wants on the one hand, and what the electronic entertainment media want on the other. Everything else will be piggybacked on that. The rules for satellite allocation or for broadcasting bandwidth allocation or for how one makes money or for how finance is regulated, will be focused around those two industries. We saw a situation in the late sixties when oil became the dominant medium of international transfer of energy, and oil set the international energy price. The gas business, the coal business, the nuclear business all have to conform to what the oil industry in effect does or does not do, intentionally or unintentionally. Today the game is computers and telecommunications, and the rules will be structured around finance and electronic entertainment, the two dominant players. Other people who want to play this game will have to follow their rules.

SB: So they are both in the bit biz. You have some interesting indeterminacies with these two things going on. If their demands are independent and they're using the same apparatus, that makes something already unpredictable doubly unpredictable.

PS: Exactly. But it also says something else. In the United States we've spent a lot of time talking about the role of information and computing in education. But by far the dominant curriculum in education today does not take place in the eight o'clock-to-three o'clock time slot. It's in the four o'clock-to-midnight shift when the kids watch television. Actually teaching time isn't eight to three, it's probably about four hours, if that. But at home they've got seven hours of much higher-impact communications bombarding them, completely overwhelming anything they get in the classroom. As in finance, the second-order (or unintended) consequence is that as the game evolves and grows, it becomes the dominant shaping influence on the players. Electronic entertainment will be the dominant educational medium that will shape global consciousness. And the language will be overwhelmingly English. The British Film Board says that something like 60 percent of all films

worldwide are in English. English-language films can be sold almost anywhere.

SB: The language of science is the language of entertainment.

JAMES OGILVY: Sure, you can see it in rock 'n' roll.

PS: In music, it's overwhelmingly the case. Go hear rock bands in Eastern Europe and they sing in English. They may not understand a word, but they sing *perfect English.* The biggest rock band in Hungary is called "Locomotive GT." And they are flawless English speakers because if they want to get *any* kind of market *outside of Hungary* they have to sing in English.

This English language advantage could be the salvation of the British. It's interesting that the English government has not yet picked up on it. All the big British movies you've seen recently were made with American money. "Gandhi" was American money; so was "Chariots of Fire." But the British see this as trivial. They're interested in saving their automobile industry, not in feeding their entertainment industry. It's amazing, but you cannot get money for films in Britain, and Britain hasn't got much else. Here's the world *hungry* for it! God, if Britain really decided to put some money behind their films!

And they have an incredible talent pool, I mean *incredible.* You know where the best special effects facilities in the world are? Britain. You know where "Star Wars" studio work was done? Pinewood Studios outside of London. Spielberg was going to do Peter Pan. He changed the setting to Youngstown, Ohio, yet they planned to shoot it at Elstree Studios outside of London. So they took a London story, moved it to the United States, and then were going to shoot it in England. Isn't that bizarre?

Thirty-five percent of U.S. video revenue from films is now international. That does not include piracy, which no doubt will be controlled as the technology moves to compact discs. I think video tape may be a 20-year medium, like reel-to-reel tape recorders. You use it for a while until something better comes along. Something like the compact disc may be the ultimate data storage medium.

SB: Does all this shifting stabilize at some point?

PS: I think so. Once the demographic pattern stabilizes, it won't be in itself a major driving force. If you look at the underlying birth rates, you see drastic declines with the exception of Africa. You've still got the momentum of the current young having their own children but subsequent to that, probably around the turn of the century, it begins to slow down. Also, at that same time, just like at the turn of the last century, the game rules will get pretty well set. The next generation of recording and presentation technology will be relatively stable for a period. That is unless there's another radical breakthrough.

By then we will have had the major advances that microelectronics and digitalization will infuse into the system. But it would be difficult to implement another technological leap on the same scale within the next two or three decades. Microelectronics today is the result of several prior decades of development, and another decade of diffusion, as people said, "Ah, what can you do with this?" and began to develop applications, languages, and so on. And it's *now* accelerating. So we're talking about a 30- or 40-year lead time in that type of penetration and restructuring process. What it says to me is that once this system comes into play, you won't want to tear it down. The advantages to be gained in restructuring would have to be enormous. So I believe the structure will be relatively stable for at least several decades thereafter, and then the changes are likely to be incremental until there's a radical change in technology again.

SB: You're saying this is basically a global phenomenon, where everyone thinks of themselves in terms of this kind of system?

PS: Absolutely. People now have access to the world in new ways, i.e. they can get and communicate information and play in games that are global in character. But I don't think it's homogenizing in the sense of everybody becoming the same, as some predicted. Of course people are more susceptible to the common winds of taste and fashion, especially the young. A perfect example of this phenomenon is Benetton, the Italian clothing chain. Benetton operates as if there is a kind of uniform, a sort of color of the week. And because of the electronic transfer of information, that color sweeps the world very quickly. And Benetton responds to and shapes that market.

JO: There are Benetton shops all over the world now and they all look alike.

PS: Staggeringly successful, with relatively high quality, medium priced, rapid turnover inventory; walk into any Benetton shop, and what you'll see is the same basic design. But the color will change every week. Their analysis will give information on the type, price, and color of every Benetton item sold worldwide in what must be five or six thousand shops, so they know what is really selling, all over the world, every day. They dye 15 percent of their colors each day on the basis of the data they get that day.

SB: It sounds like there's world fashion operating on a very tight loop. There's also world news operating on a very tight loop.

PS: Well, now we get into one of the most interesting public policy issues, and that is the control of that flow of information. The question is, will there be technical mechanisms by which governments can prevent information from flowing

Pacific Bell control center
Business consists of people interacting. The character of a large business is influenced by how everyone uses telecommunications to interact with each other.

Benetton fashion clothes
Every Benetton clothing shop in the world sells the same designs and colors on a given day. It's world fashion operating on a tight loop.

across their borders? Clearly governments outside of the United States, with almost no exceptions, reserve unto themselves the right to determine what their citizens will see. The Official Secrets Act in Britain has no U.S. equivalent. That issue is one of the thorniest in this whole game.

SB: Is information control shifting at all? Do other countries see the U.S. as just continually crazy or as having some corrections built in?

PS: No, I think most of the world still believes it is appropriate for the government to control what its people will know. It's really quite amazing to me, having grown up in the United States.

SB: When they come to the U.S., are they blown away by the stuff that's printed?

PS: No, because remember the quality of news in the United States is not particularly good. And it depends where you've come from. If you come from Britain and read an American newspaper or see American television you say, 'What crap." There's much better news in Britain than here, despite the fact that it is managed. It may be a different story if you've come from Botswana. But in Britain you could not have the equivalent of the Watergate leak. The newspapers would not be permitted to publish the story. Couldn't do it. Criticism is permissible, but information, on the other hand, is tightly controlled.

SB: How much does news piggyback on electronic entertainment?

PS: In England, totally. Elsewhere, it does to the extent that it uses the same medium. It doesn't to the extent that the dominant media are state controlled. Television, for example, is almost everywhere a state enterprise. But it is beginning to be increasingly deregulated. Italy now has some non-state stations; Holland has one, France has two, so it's begun to happen.

SB: Are they rewarded for that? Does it work somehow?

PS: Well, it's created a great debate. Again, remember nearly everywhere we're dealing with regimes that are "dirigiste" — a term not well known in the United States. It's a French word that means "state-directed." It isn't socialism, it isn't fascism, it's essentially the idea that part of the central role of the state is to direct society. As opposed to the U.S. philosophy of taking care of just a few things and letting individuals take care of themselves. Most every other country in the world is in some sense dirigiste. We are anti-dirigiste, fundamentally, in our cultural roots. So the debate is this: "If we permit private media, and it competes successfully with our state media, are we degrading the quality? Even if people like it, will they be receiving poorer information, less culture, less things they ought to have?"

So, in Britain the debate right now is: Is independent television (ITV) pulling down the BBC, the

flagship of high-quality news? And everybody is saying, "Oh, BBC news has deteriorated to compete with ITV news, and, gee, maybe we should cut ITV news and not permit them to do certain things so we can preserve the BBC." That's the character of the debate. Success does not guarantee further growth. And that's true in France, in Italy, in Holland.

JO: The U.S. can't win for losing, because on the one hand we are the number one players in the game and everybody wants our electronic entertainment. On the other hand, the more we export, the more we're accused of cultural imperialism. There's no winning that.

PS: As a multinational business, for example, Royal Dutch Shell is not permitted to ship computer data in or out of Brazil.

SB: You print it on paper and carry it in? How is it done?

PS: There's a variety of ways to do it, but we cannot establish a communication link between our computer, say, in Britain with a computer in Brazil. We're not permitted because Brazil wants to control what we send down that line.

SB: How do the Soviets handle stuff like that?

PS: They don't.

SB: There's no transnational data flow in and out of the Soviet Union?

PS: That's right. I wouldn't be surprised if some people figure out how to get around the controls, but have you ever tried to telephone the Soviet Union?

SB: But it can be done. I hear that personal computers in the Soviet Union don't have printers. Do they have telephone modems?

JO: Computer modems are arriving.

PS: But here's an example in Europe. Suppose I want to travel with a special board for driving a videographics projector for a Hewlett-Packard PC. I only have one of them and they're a real pain to get. If I want to take it from Britain to Holland for the day and bring it back that night, I have to get an export license and a re-import license just to carry it with me on the plane over and back. They're so afraid of the leak.

SB: Like dope.

PS: Only much worse. Someone could carry marijuana more easily than they could carry computers. And the fines are worse than for the drugs. There's a 75-pound fine for bringing in marijuana, and there's a 100,000-pound fine for bringing in illegal computing equipment.

SB: So what's the underground economy in this now?

PS: I've heard there's a subculture of people who will move cans of data tapes in their trucks across the Brazilian border. How large this is I couldn't guess, but I'm sure illegal telephone lines and illegal transfer of data are increasing.

SB: Enough to be game-changing?

PS: Don't know enough to really say.

SB: Typically, outlawry changes games.

PS: I think it's too new to really say. What is interesting is this: if we take my premise that these two industries, finance and electronic entertainment, interacting with the evolving telecommunications and computing technology, will write the rules for the economic and political system of the next century, then what *values* are embedded in that system? Today no one is thinking about the meaning of the rules being developed in an informal, unpredictable, evolutionary way around the short-term exigencies of those industries. Ultimately they will, quite by chance, evolve into something, and that something will become the organizing paradigm of the next century. That paradigm, inasmuch as we've ambled from the realm of the material to the informational, will become a kind of global consciousness. It is the system within which we all begin to think about ourselves collectively.

SB: "Values" means what? Global conscience?

PS: The intentional choices people would express if they had it.

SB: What were the values of the last system?

JO: An example of the kind of thing you might be getting at might come under the rubric of "form follows function" — Peter Drucker's argument about how the form of the modern corporation follows the function of the reproduction of standardized, replaceable parts in manufacturing. That's what you're talking about.

PS: That's precisely what I mean.

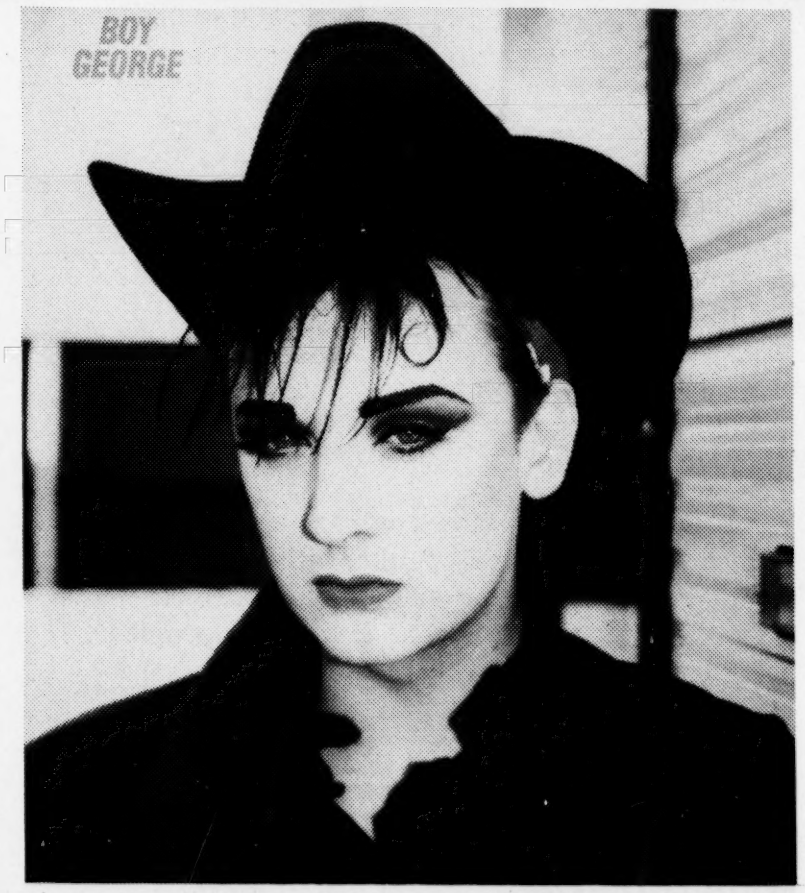
JO: So you get the bureaucratic corporations where all the lathe operators have to do the same thing, and managers tell the same thing to their vice presidents. But what if the function is no longer chung-chung-chung standardization producing the same-same-same, but you move into entertainment, financial transactions, more and greater varieties of information?

The definition of information is a *difference that makes a difference.* So if the function is production of information, then you're not doing the same-same-same any more. You're now turning out a different different difference because if it's not different, it's not information.

PS: I'll give you a concrete example: financial services. How do banks compete? Not by interest rates. The difference comes in the differential services they offer. The way they get that differential service in theory is how they manipulate and manage their own information and/or the information they get. The perfect example was how Merrill Lynch created a market: the "cash

New York Stock Exchange
The wealth of moving money around surpasses the wealth of making money. This new game is fixing the shape of communications.

Boy George
The English language is suddenly a fabulous asset. The British should forget about manufacturing cars and promote their film and music industry.



management account." The cash management account was a difference that made a difference. That principle became an intrinsic (though invented) value in today's financial system. "Efficiency," "economies of scale" — these were values embedded within the industrial system. So the new values will become implicit within the organizing structure, and people will be forced to adapt to them.

SB: What's the transition from the one overall operating system to the other overall operating system?

JO: Punctuated equilibrium.

PS: That's what I was going to say, a series of lurches. You can see a good example in the oil industry with the shift of power from the people who find, produce and refine oil to the traders. The people who find, produce and refine oil are basically an industrial model, and the values that have governed them are essentially industrial values, things like economies of scale, for example. In trading, everything is information flows, speed of reaction, differences that make a difference. "I know something you don't know." And increasingly the successful players in the oil business are the successful traders. We see this driving force in a number of industries. General Motors' acquisition of Hughes Aerospace and EDS, a computer service company, is another example. GM realized the game was going to be a function of using information to improve the nature of the car, how you manufactured the car, how you sold the car, how you financed the car. So the driving force is shifting from the designer to the person who structures the information environment. That was a conscious strategic choice at GM.

SB: What will the life of the employee be like in the industrial side versus the trading side of a business?

PS: Well, it's quite interesting, because this shifts the roles and the dominant power structure from the engineers to the traders. Where once the engineer was the hero that drove the company, now he is a functionary necessary to produce oil with which the trader can make some money.

SB: Like the farmer now.

PS: Yes, exactly. And the trader is the commodity broker. Farmers don't make much money, but the commodity brokers sure do.

SB: Farmers pretty much stay in one place. Commodity brokers slither around. They change companies, they change kinds of work. In the publishing business we have contracts because that's the only thing that remains the same during the life of the book. ►

PS: As a trader, you *move* a lot, because what you look for is information. You spend a few days at the OPEC meeting in Geneva to pick up what you can. The money is so big, and a successful trader can get such a huge premium, that people are constantly offering them vast amounts of money to move. It happens all the time. Whereas a petroleum engineer's pretty much a petroleum engineer.

SB: What does all this do to politics?

PS: I think several things. We've touched on two of them already. One is the ability of the political system to control the information that the people have.

SB: Is that more control or less?

PS: I think inescapably less. The controllers can push against the river, but an incredibly powerful current is coming at them. They can slow it, channel it a bit, but not completely. The kids are going to listen to rock 'n' roll, they're going to listen to British rock bands in America, and people are going to watch "Dallas" in England. It's happening. A second reason is world finance. It diminishes the power of domestic policies enormously, and changes the character of a politician. It's quite interesting. The one thing upon which Bill Bradley, a liberal democrat, and Jack Kemp, an extremely conservative Republican, were able to agree was the creation of a congressional forum on new mechanisms for exchange rate management. They each realize that their party's political strategy was dependent upon this same international economic issue, which in turn was being driven by this financial structure. Somebody like Jack Kemp, who would have chosen to ignore the international arena, can't do that any more. So the political ideology has begun to shift.

SB: What's good advice to a young person in a transition like this?

PS: I can't give you any profound answer other than the one that has always been the case, which is make sure you know how to learn.

SB: That's pretty good. Is that true of corporations as well?

PS: Oh, absolutely. One of the clear implications of this is a further acceleration of the rate of change in less predictable directions.

SB: "Management in the Age of Discontinuity," said Drucker. How long is this Age of Discontinuity?

PS: Probably about another decade or so. I think the world economy goes through these transitions, from periods of relative stability to relative turbulence to relative stability again. We're in one of these transitions. There's probably a relatively stable era of several decades ahead, where the basic pattern is set. Because you want to extract the value out of the capital that you invested, you don't change much. You have to get such a large increment of improvement to overcome the sub-costs, that you don't change the system.

SB: So we're going to live with the decisions that are made now for 40 years.

PS: About a half-century altogether. That's why this game is so interesting right now. The rules are just being written, and not in a conscious way.

SB: Which I assume is just as well. But I'm not sure of that.

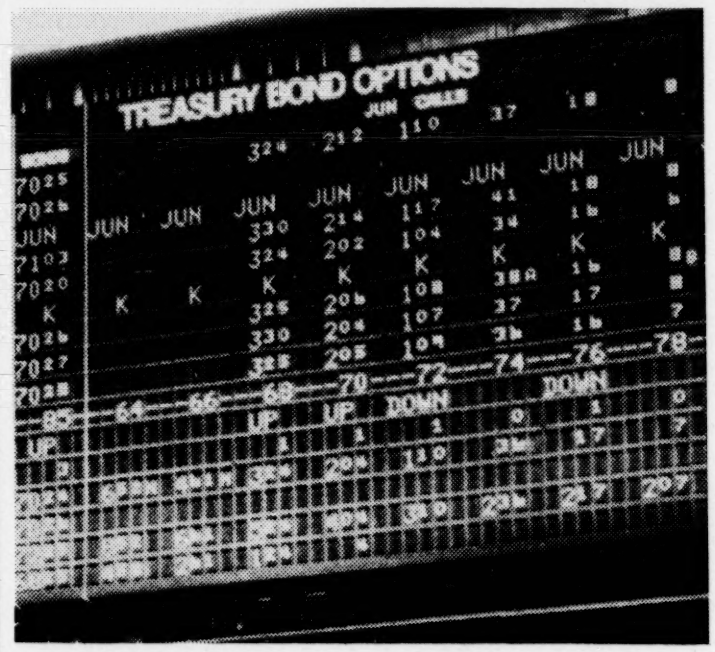
PS: Well, at least I'd want to think about what the consequences of the outcomes of the behavior we're pursuing are. In other words, I'm not sure I want somebody like me or anybody else to have the power to actually write the rules. I'm not going to trust anybody with that. But I'd sure like to think through the implications. For example, we're choosing between fiber optics and Direct Broadcast Satellite for our communications channels. What does that imply? We have to think that through in some reasonable way. International regulatory choices are going to be made. What kind of exchange rate mechanism should be established? That will have real world consequences. Thinking these questions through and reflecting them in the political process is what I would really like to do rather than see somebody actually write the rules. The most important thing is to bring this onto the table as an agenda item. "Here is a place of enormous leverage. Think about it. What does it mean?"

Almost everyone in a large company spends most of their time talking to each other, either in writing or in face-to-face, one-to-one or collective meetings, or talking on the telephone. So, how people get information to each other is a critical issue, and business is 100 percent people. Nothing else. People attract capital, people invent things, people sell things, people trade things. So if you influence how those people interact, you influence the basic character of your business. Considering that Shell has 160,000 people in 120 countries, it means that not everybody talks directly to everybody else — it's not a little shop. So media clearly come into play. How well we do that, and how the structure of the medium effects us, have a profound influence on the success or failure of our business.

The second-level issue is that Shell is profoundly affected by the structure, behavior, and dynamics of the world economy. We *are* the system, we are not separate from it. We are so big that you can't distinguish us from the thing itself in any meaningful way. For example, as I've mentioned earlier, exchange rates movements have a huge effect on Shell. We have questions: is it really going to be true that the quality of information flows will be so high that people work at home? Won't they travel very much? That affects transport fuel. Is that real? I personally don't think so, but I'd sure want to know if I'm wrong.

Gone With The Wind
Information that increases in value as it ages.

Stock prices
Information that diminishes in value as it ages.



The influence of how the media co-evolve with the structure of society is an important issue for us. Also, because we are closely linked to the rate of economic growth, if the world economy grows rapidly, we do well; if it doesn't, we don't. I believe the systems discussed will be a sufficiently large wealth generator that they will compensate for the slow growth of the heavy industries. They will be an important impetus to world growth.

SB: How much is that a self-enhancing process, wealth building on wealth?

PS: Very much so. There's the value-added in information. Most people thought about it as just moving stuff around, as opposed to adding value, but it's clearly adding value.

SB: The commodity which is not a commodity.

PS: The economics of this become quite interesting. Nobody knows. One of the great current puzzles in economics is, how do you handle information? I don't have an answer to this. It's a bitch.

SB: The way I keep stating it is: "Information wants to be free," because it's so easy to transmit; "information wants to be expensive," because it's so valuable.

JO: What gets me is how utterly inappropriate our basic economic categories are. Look at the difference between how you price a ton of steel and how you price information. For one thing, we need to recast the concept of property, because in Marx's terms property is by definition inalienably set. I sell you the cow. You got the cow. I don't have the cow any more. I sell you information. You got the information. I still have the information. That's one anomaly. A second anomaly is the notion of depreciation, the very notion of inventory. Intrinsic in information is the "difference that makes a difference" to a receiver. So the condition of the receiver is an important part of whether a given signal is or is not information. Is it news or isn't it news? That depends on the receiver and the receiver's ability to understand it. That's not true of a ton of steel. It's not true of a ton of wheat.

SB: Depreciation of news is instant.

PS: But "Gone with the Wind" is worth much more today than when it was made.

JO: Capital makes sense when it's fixed capital, when it's steel or when it's a plant. Information as capital?

SB: Radio stations are considered a swell investment by some of the venture capitalists because they have fabulous cash flow and hardly any capital requirements.

PS: That's right, a good example.

SB: Yet, advertising companies aren't putting any money into places like MIT's Media Lab because they don't have any capital.

PS: People are an advertising company's only resource. Their whole capital base walks out the door every day at five o'clock.

JO: There's a Nobel Prize waiting for the person who figures out the economics of information. ■

Grammatical Man

In the age of information it is shocking that there is so little useful information about information — how it behaves, what its economics are, indeed, what it is. A good book on the subject would have to talk about the primary domains of information: evolution, genetics, computer programming, entropy, whole systems, and human language. This book does. It is the only one to encompass the whole natural ecology of information in a readable way.
—Kevin Kelly

•

Redundancy makes complexity possible. . . . The more complex the system, the more likely is it that one of its parts will malfunction. Redundancy is a means of keeping the system running in the presence of malfunction. Redundancy, von Neumann declared,

> is the only thing which makes it possible to write a text which is longer than, say, ten pages. In other words, a language which has maximum compression would actually be completely unsuited to conveying information beyond a certain degree of complexity, because you could never find out whether a text is right or wrong. And this is a question of principle. It follows, therefore, that the complexity of the medium in which you work has something to do with redundancy.

•

Entropy is missing information, as Boltzmann observed more than a hundred years ago. Where, then, does information go when it disappears? In closed systems, missing information on the large scale of the macrocosm is converted into increasing information on the small scale of the microcosm.

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It is fascinating to see how, as the theory of thermodynamics progressed, the focus of interest shifted from what it is possible for a system to do, to what it is possible for an observer to know about the system.

•

Here we are at the beginning of a theory of evolution as an information process. Even if some of Gatlin's ideas are speculative, they force us to look at the internal structure — one can almost say the linguistic structure — of the DNA text as a protagonist rather than a passenger in the emergence of living creatures. In a now famous paper published in 1969, the American biologists Jack Lester King and Thomas Jukes wrote, "We cannot agree . . . that DNA is the passive carrier of the evolutionary message. Evolutionary change is not imposed upon DNA from without; it arises from within. Natural selection is the editor, rather than the composer, of the genetic message."

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The innate constraints of universal grammar are increasingly central to Chomsky's theory. Language is learned easily and naturally because the learner is provided with remarkably little freedom of choice. The expanded role assigned to universal grammar implies that language is even less dependent on the conscious intellect than might be supposed. . . .

The question that exercises Chomsky so much, and that he asks so often, is whether there are other, uniquely human "grammars" in the brain, generating other very complex kinds of knowledge. Innate constraints would exclude many other possible grammars, restricting freedom of choice, as in the case of spoken language.

It may be that music is one of these other forms of knowledge.

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A code is really a set of statistical rules, a form of stored information. It restricts the amount of choice allowed to

Grammatical Man
Jeremy Campbell
1982; 319 pp.
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or Whole Earth Access

the message source in special ways, by introducing redundancy, making some possibilities in the system more probable than others. But the whole point of a successful code is to retain an optimum amount of freedom, a wide variety of possible messages, consistent with the need to make and keep the messages intelligible. . . .

Such a code does not make an information system simpler, by any means. It increases rather than diminishes complexity, because complexity is not just a question of the number of parts in a system, but also has to do with their relatedness. Without redundancy, complexity cannot persist, because there would be no way to control error.

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I think we will eventually conclude that the mind remembers what the mind does, not what the world does. That is, experience is the mind at work, not the world impinging on a passive organism — and experience is what will be remembered. —James Jenkins

•

Vertebrates, Lila Gatlin thinks, were the creatures who first crossed over from "pre-Shannon" codes to second-theorem codes. They vaulted the barrier that von Neumann proposed as a dividing line between simpler systems and those in which complexity becomes explosive. Vertebrates became less simple even when they did not travel to more complicated and challenging environments. Jumping the complexity barrier led to new chemistry, to new structures; not just structures of the body alone, but also of the brain.

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It is a very plausible idea that the structure of a society, like a language, reflects, at least in part, the structure of the human brain.

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The information machine *par excellence* of our era, the computer, has not made life more uniform, as social prophets once predicted. Exactly the reverse has happened. The computer has turned out to be a device for generating differences and choice. It increases social complexity rather than reducing it. Computers are designed to deal with different choices because of the ease and speed with which they can decide among a myriad of distinct alternatives. The Model T Ford was mass-produced successfully because of the uniformity of the product. Today a single make of American car has great variety, a wide range of accessories and options, extras, colors, and materials, aimed at a market of owners who dislike uniformity. The computer is used to select from among these various components and feed each one down the assembly line. Wherever goods and services are provided, the computer can be used to extend the range of individual choice. This is exactly the way in which we would expect an information machine to function.

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Information is in essence a theory about making the possible actual. It sets an event which does happen in the context of other and different events which only might have happened, so that potential and actual are related.

The journal that follows was lifted out of the memory files of the Whole Earth 'Lectronic Link (the WELL). It is one of thousands of conversations instantaneously crystalized by the WELL every day. One enters the WELL solely through phone lines, via a computer modem. The WELL links people as instantly and fleetingly as a telephone call, but since it retains comments as a long chain of exchanges, it possesses a sense of semi-permanence. It's sort of like mail, sort of like a phone call, and if the signal is transmitted through microwave or a cellular phone, it's also sort of like radio.

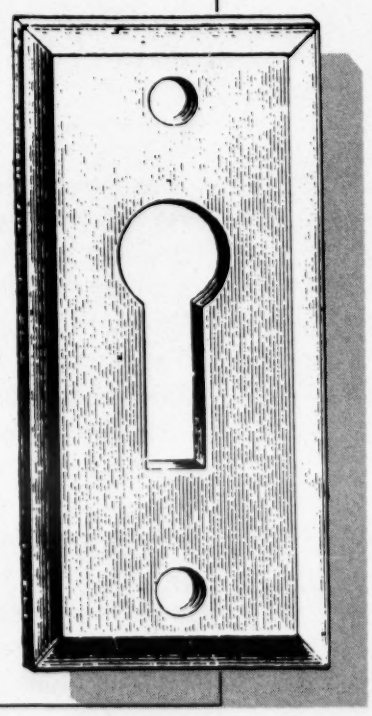
This particular diary is published here because it shows a newborn information structure (the WELL) figuring out what the structure of information should be using its own new qualities of narrowcasting and electronic journalism as both example and tool. Not a small part of what electronics is reorganizing is politics. We are going from the place-specific politicking in Washington, to the body-electric democracy demonstrated in this article. —*Kevin Kelly*

The Public Matter of Electronic Privacy

by Robert Horvitz

SHOULD IT BE A FEDERAL CRIME merely to tune into certain types of radio signals? A bill with that implication is part of a complex, sweeping legislative package known as the Electronic Communications Privacy Act of 1986 (the ECPA).

The ECPA is designed to update old federal telephone wiretap laws to include modern computer networks, satellites, electronic mail, and other new media. It also establishes rules for law enforcement uses of new surveillance technologies (tracking devices, mobile monitoring stations, video cameras, etc.) in our information-rich society.



There is obviously a need for new legislation to reconcile the conflicting rights of access and privacy in electronic media. The current wiretap provisions, for instance, were written in 1968, when virtually all phone calls involved humans speaking to humans. That assumption is woven into the language of the law — to the point where computer transmissions over the same phone-lines may not be legally protected against interception. It is a fuzzy question whether a private conversation through a computer-modem network like Whole Earth's WELL would be legally secure against someone tapping it. Extending protection to digital data sent over phone-lines is relatively simple, and is one good thing that the ECPA does. But the bill is much more ambitious than that. It aims to protect all forms of electronic communication, regardless of the mode of transmission, by making unauthorized interception a federal crime.

No one has found fault with the goal of protecting media that have reasonable expectations of privacy. But many people object to the methods the bill uses (relying exclusively on legal deterrence rather than a mix of law and technology), as well as its judgments about what services deserve the mantle of federal protection. The loudest objections have been to the way the bill deals with radio communications, because it marks a radical change from present and past policies. ►

Under current communications privacy laws, radio and wire media are treated very differently. Tapping a telephone line is a felony, but tuning in a radio signal is all right — so long as you don't divulge or exploit the content of a signal addressed to someone else. These legal differences are due to physical differences in the two types of media. A phone-line is private property and anyone tapping it is clearly a trespasser. On the other hand, a radio channel is not privately ownable. It is part of the public domain. If you can tune in a radio signal inside your home, that's because the signal is trespassing into *your* airspace.

A serious dilemma arises when you have media that combine radio and wire in a single communication, as in satellite relays of TV programs to cable networks, and cellular radiotelephony. To "solve" this problem, the ECPA attempts to treat radio like wire. "The public airwaves" is a concept sacrificed on the altar of privacy: according to this bill, radio is "electronic communication" and thus illegal to intercept — except for services listed as exempt in the bill.

Making it a federal crime to intercept energy passing involuntarily and continually through everyone's body 24 hours a day might go a bit too far, so the bill says it's all right to receive communications that are "readily accessible to the general public."

The problem is, the bill's definition of "readily accessible" has little to do with everyday reality. It includes a list of services declared to be not readily accessible, in order to qualify them for federal protection, even though their transmissions are, in some cases, so readily accessible that on some common types of receivers they are virtually unavoidable.

The consequence of criminalizing reception of radio signals that pervade populated areas is to expose large numbers of people to the risk of prosecution for picking up these allegedly inaccessible signals on ordinary televisions, VCRs, scanners, and shortwave radios in their own homes. At the same time, it makes the bill unenforceable and gives users of the protected services a false feeling of security. It also shifts responsibility for privacy protection from the transmitter — "who is in the best position to protect the signal," as the FCC says — to everyone else in range of the signal. You might think of it as equivalent to making everyone in a crowd wear earplugs so that two people can shout at each other through megaphones without being overheard.

One of the first groups to complain about this aspect of the bill was the Association of North American Radio Clubs. ANARC is a consortium of 18 clubs whose members are primarily shortwave listeners and scanner owners. [For a sheet describing the clubs, send 25 cents and an SASE to the ANARC Newsletter, P.O. Box 462, Northfield, MN 55057.] Their stake in the bill is pretty clear, as they would be routinely subject to sanctions of up to one year in jail and fines of up to $100,000.

ANARC's executive secretary, Terry Colgan, asked if I'd follow the bill for ANARC and act as his liaison in Washington, DC, where I live. Because the bill applied to computer communications as well, I started posting notes about its progress, and my lobbying experiences, on the WELL's Telecommunicating Conference. The "ECPA Update" quickly became one of the most active topics, and the sometimes-raging debate mirrored many of the issues discussed in Congress. There was also an intriguing, ongoing resonance between the medium of the discussion and the subjects discussed.

Ramon Sender edited the comments down to publishable size, keeping the chronology but deleting much of the froth and flame. Don't confuse my views with evenhanded, objective reporting. Other witnesses of these same events would no doubt describe and interpret them quite differently. —Robert Horvitz

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No. 8: Robert Horvitz (rh) **Mon, Jun 23, '86 (22:38)**

In a brief, sparsely attended session lasting just 45 minutes, the House of Representatives passed the Electronic Communications Privacy Act today. There was no floor debate of any consequence. Satellite dish owners' concerns allegedly will be dealt with in the report accompanying the bill. The same bill has been introduced to the Senate by Sen. Patrick Leahy as bill number S.2575. The Subcommittee on Patents will take it up after Congress returns from holiday on 14 July. While the House was voting, I met with the Senate Subcommittee on Patents' Steve Metalitz (staff director) and John Podesta (minority chief counsel) to reiterate our views on the bill and try to convince them to hold one more round of hearings to get the FCC's views. Only time will tell if they'll do it.

No. 9: Glenn S. Tenney (tenney) **Fri, Jul 4, '86 (00:02)**

I just received my copy of S.2575 from the Senate and am aghast! First, it doesn't seem to protect cellular calls originating in a car. It also seems to change the usage of common carriers on almost every bbs [bulletin board system] or UseNet node. This thing is dangerous to every bbs operator/provider or user . . . How can the ACLU not view this as a massive invasion of privacy?

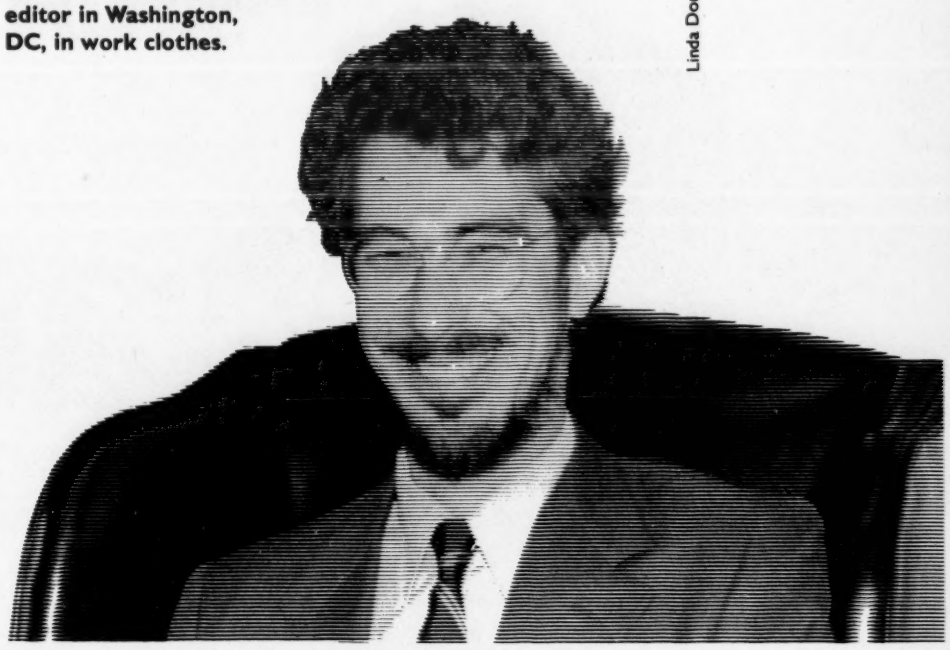
No. 12: Harry Goodman (hmg) **Fri, Jul 4, '86 (15:37)**
There have been several Justice Department-inspired amendments to the original bill. One would allow the Feds to monitor you for up to 48 hours without court approval. There's more, and little of it seems promising for a free society. I'll be talking to the ACLU's Washington office next week and I'll try to learn their thinking on all this . . .

No. 14: Robert Horvitz (rh) **Sat, Jul 5, '86 (23:32)**
Glad to see your responses. Glad too, Harry, that you're planning to talk to the ACLU. It amazes me that they support the bill. Jerry Berman, head of their committee on technology and privacy, is a principal architect of the bill . . . I'm particularly glad you're looking closely at the parts relating to computers and electronic mail. These are new areas for me, and I often don't catch the implications of the language.

No. 15: Robert Horvitz (rh) **Sun, Jul 6, '86 (09:07)**
After posting the above, I reread a memo Rep. Kastenmeier gave the members of the House Subcommittee on Communications in May explaining some of the changes made at the Justice Department's request. One of special interest to computer networkers: Justice asked that access to "the contents of a remote computing service" be made possible for government investigators without notice to the customer whose records are obtained. Notice to customers can be precluded by issuance of subpoena or a summons. Investigators can also require the recordkeeper to make a "snapshot" of records for government review. Another modification for Justice (from the memo): the "exclusionary rule" (by which illegally obtained evidence cannot be used in court) would not apply to non-voice electronic transmissions. Is this truly in the bill? Outrageous if it is. Finally, there's a note in the memo stating that a requirement that the government must have formal authorization to enter a house or business to install a bug or tap has been deleted from the bill!

No. 16: Robert Horvitz (rh) **Sun, Jul 6, '86 (16:38)**
Review of some of the nastier, non-radio provisions of this bill: S.2575 would increase the number of people entitled to authorize federal wiretaps as well as the range of crimes for which wiretaps can be authorized. It would loosen existing restrictions concerning who may conduct these taps (as of now, only investigative personnel can) and allow subcontractors access. Also the bill would give new authority to district courts to install mobile listening and tracking devices. Of particular concern to networkers: the bill would allow government agents to obtain copies of information stored in public computer networks without prior notice to those whose records are intercepted. And it would make "good faith . . . a complete defense against any civil or criminal action" that may result from illegal government interceptions of electronic records or communications. We had focused for so long on the bill's radio provisions that it wasn't until you guys began commenting on the other parts that I sat down and analyzed them. It's even harder now for me to believe the ACLU supports this.

Representing radio listeners: Robert Horvitz, Whole Earth editor in Washington, DC, in work clothes.



Linda Donnelly

No. 18: Dave Hughes (dave) **Mon, Jul 7, '86 (00:13)**
. . . C'mon, gang, better get involved, long distance if necessary, to be sure what that bill says . . . .

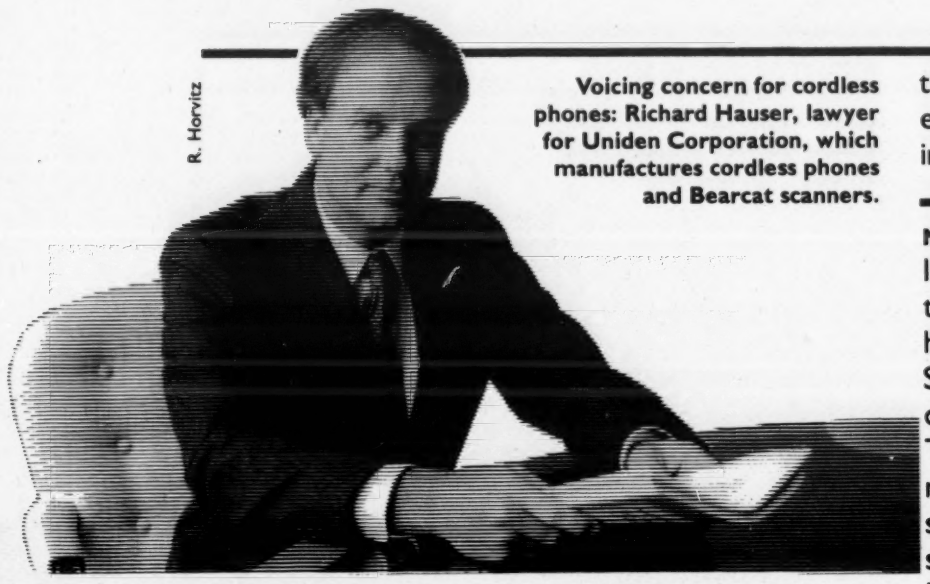
No. 19: Harry Goodman (hmg) **Mon, Jul 7, '86 (10:30)**
Well, after a ten-minute phone discussion with the ACLU's Jerry Berman, I at least can appreciate their thinking. As written, the bill offers the only real chance for passage within the existing administration and congress. One Encouraging Note: Berman stated that the bill clearly establishes Fourth Amendment privacy protection for electronic mail. The government will be required to obtain a court order if they want to access e-mail. Under current law there is apparently no such provision. Berman is open to suggestions that address major flaws and suggests that interested parties obtain a full copy of the legislation.

No. 34: Glenn S. Tenney (tenney) **Thu, Jul 10, '86 (01:34)**
. . . I've keyed in and uploaded the first 1/4 of S.2575. . . .

No. 35: Harry Goodman (hmg) **Thu, July 10, '86 (08:18)**
Glenn, that's GREAT!!! Many, many THANKS!

No. 41: Glenn S. Tenney (tenney) **Fri, Jul 11, '86 (00:43)**
I have just now finally uploaded the last 4 parts (of S.2575). The entire file is /well/info/telecom/privacy bill . . . Now let's get those cards and letters in!

No. 48: Robert Horvitz (rh) **Fri, Jul 11, '86 (22:19)**
I stay off-line for a week and discussion on this topic has IGNITED! To clear up some queries, there are presently no laws against federal agents going through open files maintained in public-access computer nets. Under the ECPA, a court order, summons or subpoena would be required. Be that as it may, it's great to see such intensity focused on this bill. Hard to


R. Horvitz

Voicing concern for cordless phones: Richard Hauser, lawyer for Uniden Corporation, which manufactures cordless phones and Bearcat scanners.

believe it slipped through the House with almost no serious public discussion. Kudos to all of you for putting democracy into action!

No. 59: John Coate (tex) **Wed, Jul 16, '86 (14:13)**

So does that mean they will have a harder time getting info from the WELL? Since it's apparently so easy now, this law is designed to improve protections for us, not take them away. Correct me if I'm wrong.

No. 60: Dave Hughes (dave) **Wed, Jul 16, '86 (20:06)**

Sure you will have more protection. Right now you have none on here. With this law, law enforcement agencies have to get a judge to permit them access. And the system providers are obliged by law not to divulge anything you put on here. . . .

No. 65: Dave Hughes (dave) **Fri, Jul 18, '86 (05:50)**

. . . The WELL is not an "easy" public-access system because no one can dial in without specific permission. That meets the test of the law, and I specifically asked that question of Berman. The fact that, once you are on here, this conference is "open" has nothing to do with it. Now if — as in many bbs's — one could dial in, register automatically, and have instant access to everything, even though one assigned oneself a password, then that is "easy access" and anyone can do it, not just those who are given permission. . . . If the matter came to court, I am sure the burden would fall on the system operators to prove that "open" conferences were in fact not easily accessible to the outside public. But the intent of the system operator would be crucial. . . . The loophole is that I can give your comments here to anyone, but the system operator can't. Now if people here think all of the above is wrong, and there is no protection on the Source, CompuServe, or here for a conference, you'd better start raising hell in Washington. But I have trouble thinking that the Source, which has formally endorsed the bill, would allow its total system to be unprotected under the law. That would mean all those corporations paying $5,000 and up for their conferences would be unprotected.

No. 66: Harry Goodman (hmg) **Fri, Jul 18, '86 (23:55)**

. . . I wonder what there is to prevent the government from becoming regular subscribers to an online service? The FBI not only uses CompuServe, but they maintain at least one public area there. If a law-enforcement agency wanted to know what's going on in the WELL's public areas, they could simply sign up.

No. 74: Robert Horvitz (rh) **Tue, Jul 22, '86 (23:55)**

In a startling new development, the Electronic Industries Association's Mobile Communications Division has sent a letter to all senators arguing AGAINST S.2575's radio provisions and echoing ANARC [Association of North American Radio Club]'s position! This is surprising because the cellular phone and mobile radio manufacturers are EIA members. A letter, signed by Eric Schimmel, states that the bill is "inconsistent with the Communications Act of 1934 . . . [which] has passed the test of time and should not now be abandoned." (The Communications Act provides that in the case of radio, mere reception is not criminal — divulgence or use is. Under that doctrine, the FCC [Federal Communications Commision] has consistently maintained that anyone using the public airwaves for private messages bears the responsibility for protecting his messages.)

Last week I wrote Sen. Barry Goldwater asking that he hold hearings on the bill before his Subcommittee on Communications. According to the FCC General Counsel's office, the Subcommittee on Patents has not scheduled any further action on the bill, and probably won't until they get the FCC's position. Stay tuned . . .

No. 78: Robert Horvitz (rh) **Sun, Jul 27, '86 (13:12)**

John Podesta told me Friday that his staff will recommend that S.2575 be amended, and one or more of our amendments will be on the list. Our amendments include these: it should not be illegal to monitor the environment to determine compliance with EPA [Environmental Protection Agency) and FCC radiation exposure regulations (S.2575 makes such monitoring a federal crime); any service offered to the public in which an expectation of privacy is promised by the vendor shall be private in fact, or vendor shall be required to advise customers that service is not in fact private; stations causing recurring harmful interference can be reported to FCC without reporter thereby admitting to a criminal act (S.2575 makes it a crime to stay on channel once the source of interference has been identified); cellular phones should be treated legally just like cordless phones. . . .

No. 80: Glenn S. Tenney (tenney) **Sun, Jul 27, '86 (22:41)**

See if I'm correct: this bill would make it illegal to use an FM SCA [subcarrier tuner], a videotext decoder or a closed caption decoder. My reading of the bill lumps all those things together with a "scrambled" signal.

No. 81: Robert Horvitz (rh) **Mon, Jul 28, '86 (00:11)**

Right you are, Glenn. Taken literally, listening to FM stereo could be interpreted as a federal crime, since FM stereo is a subcarrier service enhancement! However, the report accompanying the bill explains that any subcarrier or subsidiary service intended for public reception is OK to tune in. That means that

as a listener you would be responsible for figuring out the transmitter's intent!

No. 82: Robert Horvitz (rh) **Sat, Aug 2, '86 (13:39)**

The FCC recommends the bill be amended, supports several ANARC proposals. ARRL [American Radio Relay League] says the bill has "defects," and the board votes not to support it. Sen. Leahy hopes there will be time for a Subcommittee meeting to consider S.2575 on Wednesday, August 6th. It looks iffy at the moment. He does not want to hold hearings on the bill because he wants action on the bill before Congress's mid-August recess. However, the Senate Subcommittee on Communications has already agreed to review it but has not formally asked for a referral. The latter might lead to redrafting, hearings, more time for citizen input. Its decision is expected this week.

The FCC delivered a letter to Sen. Strom Thurmond on July 30th stating their views on S.2575. It concludes, "We believe the legislation, if amended, may offer a reasonable and responsible statutory basis for determining unauthorized interception of new radio and other electronic communications . . ." In other words, they do not support the bill as presently drafted.

The amendments recommended by the FCC are: to add a provision making it a federal crime to transmit signals "intended to interfere with the operation of satellites, or with the transmissions they convey" (this an obvious response to "Captain Midnight"); to insert language clarifying that it is not a crime to tune in subcarriers, subsidiary services, and remote auxiliary broadcast transmissions intended for public reception; to expand ANARC's already-accepted clause denying protection to signals causing harmful interference to include interference caused to any "consumer electronic equipment"; to modify ANARC's proposed amendment making it legal to monitor RF [radio frequency] levels for compliance with human RF exposure regulations (FCC regulations now in the works apply primarily to FM broadcasters and satellite uplinks, so they recommend that the bill not criminalize monitoring of those stations for emission biohazards); and finally: "Since 'electronic' communication includes 'radio' receivers, we agree with ANARC that the terms 'primarily useful' and 'surreptitious' should be clarified," since the bill would make it a crime to manufacture, advertise, sell, or own devices "primarily useful for the purpose of the surreptitious interception of [electronic] communications."

While the letter gave ANARC tremendous support, the FCC copped out on the important issues. They did not affirm their long-standing policy that signal protection is the responsibility of the transmitter, and they did not address the question of how to treat cellular transmissions.

Finally, the American Radio Relay League's directors voted unanimously not to support the bill because of its "defects." Namely: "While [S.2575] appears to protect current amateur radio interests in its present state, the Act fails to adequately protect the services it intends to, and represents an unneeded change from current rules . . ."

No. 84: Robert Horvitz (rh) **Wed, Aug 6, '86 (21:43)**

The mark-up of S.2575 has been postponed until Tuesday, August 12th. I've been talking with Sen. Leahy's office almost daily in an effort to work out some agreement on a modification of the bill's radio provisions. They are considering a variety of changes, mostly inconsequential.

One area where we've progressed is in labelling "leaky" media, such as cellular. The concept is that any service based on transmission technology that renders communications susceptible to inadvertent interception (i.e., is so insecure that someone can stumble onto a communication without even trying) should be labelled to advise users that privacy may not be ensured. This is modeled on the label requirement for cordless phones. Likewise, radio scanners capable of tuning in protected communications would also be labelled to warn of the risk of violating the law. This idea of mutual warnings may lead to agreement on some of the general issues of responsibility — although it is adamantly opposed by phone companies and cellular systems. They don't want their customers to be aware of any vulnerabilities.

I spoke today with Craig Potter, who plays a key role in the EPA's radio emission control program. After a detailed discussion of the situation, the FCC's letter, and our amendment on the subject, he said he would call the Subcommittee on Patents tomorrow to express support for our amendment.

More news as it happens . . .

No. 86: Robert Horvitz (rh) **Fri, Aug 8, '86 (21:44)**

It looks as if the mark-up may be postponed again. Members of the Subcommittee are reporting a growing influx of mail from constituents protesting the bill's radio provisions. Sen. Grassley apparently received a wad of mailgrams from Iowa's communications department, and Sen. DeConcini's office phoned Regency Electronics' lawyer today for advice on how to allay constituents' objections. Suddenly we are being supported by some real heavyweights. The former general counsel of the President's Office of Telecommunications Policy set up some meetings for us to get our views better known. Richard Hauser, a former White House counsel, also has been very helpful. And the Washington Legal Foundation, a conservative public-interest law firm (if there can be such a thing) has offered help on the cellular issue. It's all very heady, although the Senate situation remains the same. Craig Potter, EPA Assistant Administrator, phoned Sen. Leahy's office today to express his agency's concerns. Anyway, it looks as if the Senate's end-of-term pile-up is going to make it difficult to get the bill to the floor. We've been told by several sources that the pressure to pass the bill this session is coming from the intelligence community. The reason: they want to stifle development of consumer-grade encryption for fear it would spread worldwide. ►

Guarding the dish waves: Robyn Nietert, ace lobbyist for the Satellite TV Viewing Rights Coalition.

Robert Horvitz

No. 90: Robert Horvitz (rh) **Mon, Aug 11, '86 (21:50)**

The mark-up is on for Tuesday, 12 August, at 9:00. Because of conflicting meetings, a quorum is only expected to be available for half an hour. The new draft of the bill released to the Subcommittee Friday includes a revision important to networkers: "a provider of [an electronic communications or remote computing] service *may disclose a record or other information pertaining to a subscriber to or customer of such service . . . to any person* other than *a government entity . . .* [and] *a government entity receiving records or information under this subsection is not required to provide notice to a subscriber or customer"* [emphasis added]. Disclosure to a government entity would still require a court order, subpoena, or warrant.

No. 91: Robert Horvitz (rh) **Mon, Aug 11, '86 (21:59)**

A late thought: maybe this free disclosure to non-government entities is just to make it clear that third parties can read and download messages addressed to others in a public access system. I don't understand what their intent is. Do please ask if it concerns you.

No. 92: Robert Horvitz (rh) **Tue, Aug 12, '86 (11:04)**

The mark-up took place at about 9:30 this morning. Sen. Leahy introduced the new draft of the bill as a "clean substitute." This version modifies language throughout S.2575 emphasizing that data in temporary storage in a communications network is meant to be part of the protected "communication." This is a definite improvement. Also added was a penalty for interception of some unencrypted satellite television transmissions ($500). The satellite dish owners are upset about this (result of a failure of yesterday's meeting), and Sen. Grassley intends to introduce an amendment at the (Judiciary) Committee level eliminating the criminal penalty and substituting a court injunction as the interceptee's only legal remedy. If he does, it is unlikely the bill will be reported out of committee this coming Thursday. There's no time for prolonged debate because they have beaucoup important floor votes on Thursday and Friday.

We picked up a small concession in this draft: land mobile radio services were explicitly made legal to monitor (as they are under present law), except when their transmissions are not "readily accessible to the general public." That's the familiar euphemism for phone-patches, which it would be illegal to monitor.

The change about computer data disclosure to non-government entities was clarified at the mark-up session. They wanted to allow service providers to release names of subscribers for sale as a mailing list. Right to release would be limited to basic billing information like names and addresses, apparently. There was no discussion of the changes, or indeed of the bill's content at all. Sen. Mathias and Leahy both expressed hope that the conflict over satellite TV reception could be resolved before Thursday's meeting of the Judiciary Committee. If it can be, the bill will probably be reported to the full Senate for consideration after recess. If not, the recess will be used to pursue agreement. Constituent mail against the radio provisions is increasing, but overshadowed by protests from radio equipment vendors. As businesses, they're treated like the cows of India. (Actually, this whole process demonstrates how business interests dominate the legislative process. The fact that we aren't paid professional lobbyists — just concerned citizens — makes them very uneasy. They're not used to dealing with people with noncommercial motives.)

No. 95: Robert Horvitz (rh) **Thu, Aug 14, '86 (17:06)**

Satellite dish owners and the NAB did reach agreement last night. Their joint amendment makes first-time reception of an unencrypted satellite video transmission a noncriminal act, but permits a court injunction to stop a particular individual. Second and subsequent times, there'd be a maximum fine of $500, plus compensation for actual damage, if any.

Another minor change: the penalty for reception of a radio common carrier (paging or old-style carphones) would be reduced to 6 months in jail and $500 fine rather than 1 year and $10,000 fine. (This is to bring them into line with the penalties for interception of cellular.)

We hope to reach some agreement soon on what radio receivers are legal to own, and the "state of mind" one must be in to be accused of the crime of radio-listening (!). That is to say, inadvertent interception is allowed, as is monitoring for environmental hazard assessment. It's the *attitude* toward the activity that they want to criminalize. At first I said I didn't want to contribute to such a cockamamie project, but that's what they want to do, and not contributing may yield an unacceptably broad definition. I asked Rep. Carlos Moorhead, one of the sponsors of the House bill, what he meant by "willful" interception. His reply: buying a radio and turning it on. That's the kind of definition we'd like to avoid having be made a crime.

No. 97: Robert Horvitz (rh) **Sat, Aug 16, '86 (11:07)**

S.2575 clearly puts subcarriers and subsidiary services "off limits." When we pointed out that it would make listening to an FM stereo broadcast a crime, the legislative report accompanying the House version had text added to explain it was OK to tune in a subcarrier if it was intended for public reception. We replied that listeners may not be able to discern the trans-

mitter's intent: how can you tell if an hour of music is a broadcast or a subscription service? The FCC supported us on this, and recommended the Senate bill be clarified.

An extraordinary behind-the-scenes drama took place last night as the Senate met in their final marathon session. An aide to a senator on the Judiciary Committee called me around 8:30 p.m. to advise that Sen. Leahy wished to present S.2575 *that night*, bypassing Judiciary Committee consideration. This could only be done with the unanimous consent of the Committee. The aide said I had five minutes to tell her why this senator should withhold his consent and asked what it would take to resolve our most important problem with the bill. I said, delete two of the services defined to be not "readily accessible" — subcarriers and remote broadcast pick-up stations.

Ten minutes later she called back to say they wouldn't delete the services, and repeated the same counter offer we had rejected last week. I rejected it again. She called back ten minutes later to say that all Sen. Leahy would give was the offer I had rejected. I said, we'll take it, but if the bill didn't pass that night, I'll be on the Hill all next week trying to clean up the definition of "readily accessible." Ten minutes later she called back: "Tell me again why we should hold the bill until after recess." I gave my rap a little better this time, the gist of it being if you make it a crime to receive electronic information that is *freely available in the environment — in the airspace of your own home* — you deny the extension of First Amendment rights to electronic media. She didn't call back. I stayed up until 2 a.m. watching the Senate on TV, and the Electronic Communications Privacy Act was not one of the dozens of measures passed before they finally adjourned at 4 a.m.

No. 111: Robert Horvitz (rh) **Wed, Aug 27, '86 (21:04)**

Government communications is fascinating. I do hope it's not too long before there's more public access (e-mail, on-line services). Unfortunately, the trend under the current administration is to restrict public access.

A reporter researching this bill gave me some information gleaned from the Federal Election Commission about PAC [Political Action Committee] money contributions to congressmen sponsoring the ECPA. Patrick Leahy has received the most money: $5000 from the National Cable Television Assn; $1500 from the National Assn of Broadcasters; $500 from Telocator Network of America (paging services and cellular); $1000 from Bell Atlantic; $1000 from MCI; etc., for a total of $10,075. And those are just organizations' contributions. He might have received more under the names of individuals. These are much harder to research. The president of the Cellular Telephone Industry Association, Robert Maher, has given personal contributions to some key members of various Committees. If we didn't know his position, the reporter wouldn't have even known to look up his name. Other congressmen who were early and key sponsors: Rep. Carlos Moorhead got $5,600 from corporations and associations supporting the bill; Rep. Frederick Boucher got $7,250; Reps. Swindall and Hyde got a couple thousand.

Robert Horvitz

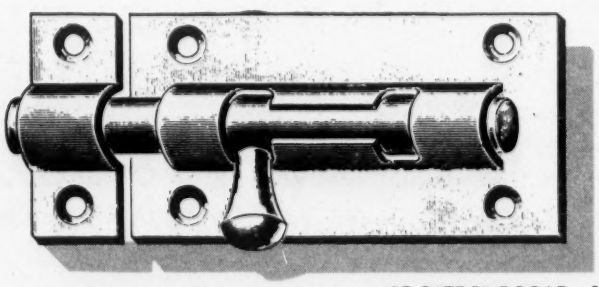
Monitoring the laws that make monitoring illegal: John Podesta, minority chief counsel, Senate Subcommittee on Patents, Copyrights and Trademarks (left); Ann Harkins, Patents Subcommittee counsel, aide to Sen. Patrick Leahy (right).

No. 115: Robert Horvitz (rh) **Thu, Sep 11, '86 (22:27)**

The mark-up of S.2575 did not take place this morning as planned. Sen. DeConcini forced delay of consideration of all bills, leading to adjournment of the Judiciary Committee after barely 15 minutes. This delay is a severe blow to chances of the bill's passing. A lobbyist long involved with the ECPA calculates that if the bill does not pass within the next eight days, there may not be time for a floor vote and reconciliation with the House version. The next meeting of the Judiciary Committee is seven days away. Sen. Leahy attempted to bring the bill up today, but Sen. Thurmond dismissed the panel amid much audience grumbling. The media had turned out in force: all three TV networks, standing room only. Sens. Leahy and Mathias planned to submit yet another new draft of the bill, including two amendments introduced by Sen. Paul Simon (D-IL) on our behalf. One would eliminate the six-month jail term for interception of cellular, the other would treat remote broadcast auxiliaries like unscrambled video satellite relays — that is, not a crime to receive, with injunction the initial relief. Both of Sen. Simon's amendments will be incorporated in the substitute draft submitted to the Committee (next week?).

No. 120: Robert Horvitz (rh) **Mon, Sep 15, '86 (07:44)**

On Saturday the *New York Times* ran a scathing op-ed page piece about the ECPA. This gives all its opponents a big boost. After a number of consultations this weekend, I'm sure we can get more concessions. Thus my crusade is *not* yet over, although we may be on the final glidepath. ■



Forget all the rules . . .
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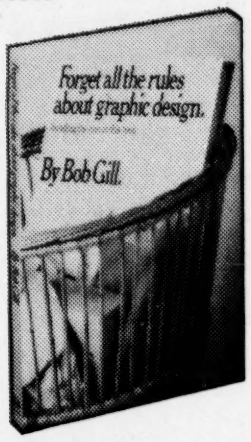


Original problem: **Logo for the Broadway musical *Dancin'*. It has no plot but many styles of dancing.**

Redefined: **How can one image give the impression of many styles of dancing?**

Forget All the Rules . . .

As he was being taken away by the police, acrobat Philippe Petit explained why he had walked a rope between two of the world's tallest buildings: "I see three oranges, I have to juggle. I see two towers, I have to walk."

Seeing unique aspects in commonplace things is also what makes for original graphic design. In this inspiring book, Bob Gill showcases a hundred of his toughest design problems with his wittiest solutions. According to Gill, to arrive at a unique solution you need to define a unique problem. However, the complete title of the book is ***Forget all the rules you ever learned about graphic design. Including the ones in this book.*** *—David Jouris*

•

I wanted to do something that was original. But I kept thinking of ideas based on images I had already seen. Then I realized that it was inevitable that my ideas *had* to be based on previous experiences. What else could possibly be in my consciousness *but* previous experiences?

I would have to go *outside of my head* to look for an original idea. I decided that getting involved with the new problem was the most likely way of going outside. Of having a new experience.

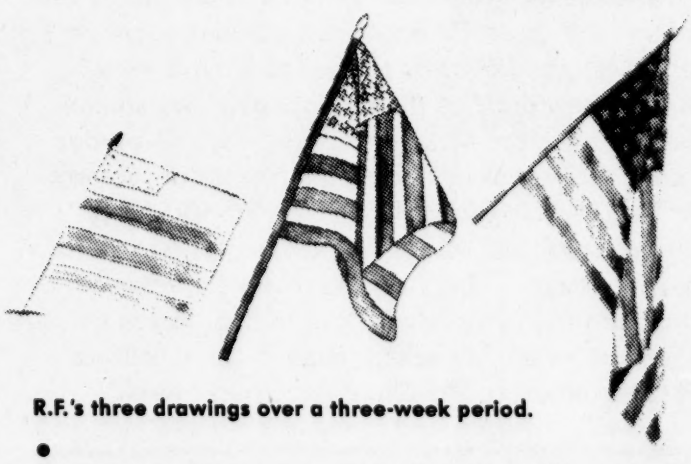
If I could express the uniqueness of what the problem was trying to communicate with an image which was valid *only* for that problem, then I would have invented a unique image.

In other words, defining a unique problem would inspire a unique solution.

Drawing on the Artist Within

Betty Edwards' first book, ***Drawing on the Right Side of the Brain****, gives the basics on how to see and how to put what you see onto paper.*

Once you've learned to draw what you can see you'll want to draw what you imagine. Her new book, ***Drawing on the Artist Within****, helps you to add expressiveness and innovation, turning your drawings into art.*
—Kathleen O'Neill



R.F.'s three drawings over a three-week period.

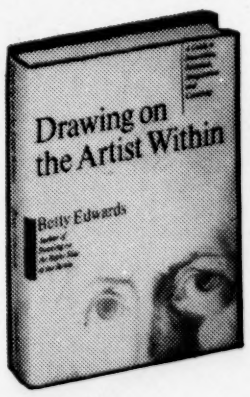
•

A casual observer viewing R.F.'s three drawings might conclude that he had "learned to draw" in the three weeks. But that wasn't it at all: R.F. had learned to see "differently" — that is, to "see" information which was out there all the time, but which was at first simply rejected because of quick closure and premature, preprogrammed conclusions.

•

Once I had glimpsed the parallel strategies of reading and drawing, my ideas about teaching drawing, and about thinking in general, changed. I viewed drawing in a new way: I saw that the first requirement was the fundamental illumination that drawings have meaning, and that this illumination provides motivation for acquiring the basic component skills of drawing — a limited set of integrated visual-perceptual strategies. These skills could be learned at a young age and be used to structure thinking — in short, drawing as cognition training rather than (or in addition to) artistic training.

Student analog drawings of "Human Energy."



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Try to see the edges *not* drawn (of the fingers and the thumb).

"Sometimes it is actually easier to draw the spaces and let the objects take care of themselves."

◄ Four dummy covers suggested for *Time*'s July 29, 1985 special issue.
—How . . .

Step-by-Step Graphics • How . . .

The current trend in graphics magazines is the how-to genre. Two have successfully entered the marketplace this year, indicating a growing hunger for nitty-gritty studio tips on tools and techniques.

***Step-by-Step Graphics** is a good entry-level introduction, offering solid advice on such basics as copy-fitting, trouble-shooting the airbrush, or simple techniques for adding color to black-and-white line art. The emphasis is on the creative process rather than the finished result, with lots of large, clear photos showing each stage of a project. Readers are encouraged to participate by sharing short cuts and case studies of their own. Though a bit pricey at $7.50 a copy, the information is often worth it.*

***How . . .** is geared more for the graphic arts professional, focusing as much on business tips as studio techniques. Each issue offers advice from top-level art buyers on developing and presenting your portfolio. The how-to features include the evolution of concepts as well as the steps involved in their execution. Close-up articles feature graphics heavyweights such as Milton Glaser. The magazine itself is quite attractively designed.* —Rebecca Wilson

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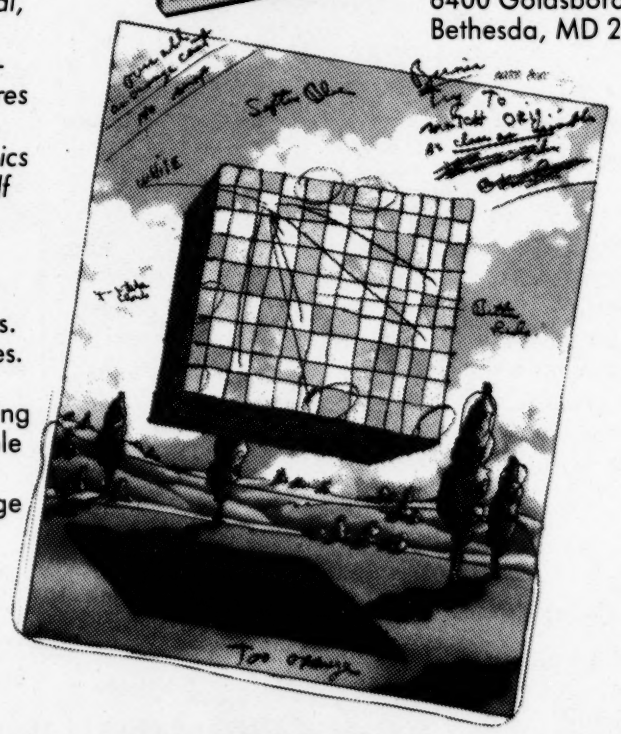
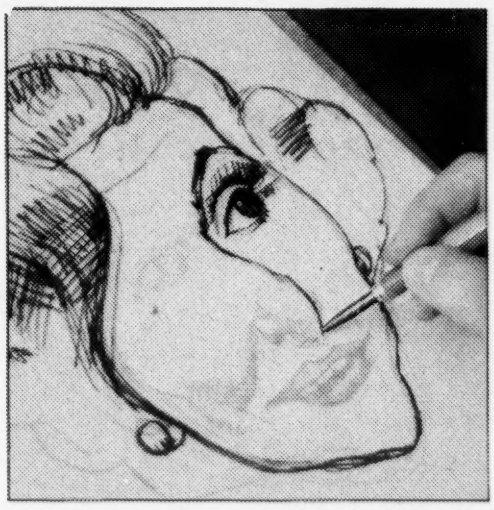


►
Once the background was dry, Conge applied the remaining hues with several different Percy Baker brushes. The colors are all Peerless mineral-base watercolor dyes. "I like their intensity," he says. "If you took a quart, which would last a lifetime, and poured it into a swimming pool, it would change the color of the water in the whole pool. It's incredible." Next, it was off to the printer, whose first chromalin was "quite unsatisfactory," Conge says. "The whites were dirty and the overall colors heavy and deep." —*How . . .*



Gersten works in layers of tissue paper until he reaches a point where he is satisfied with the relationships between characteristics — eyes to nose, nose to mouth and so on. He continually refines his sketch by placing a new piece of tissue paper directly on top of the previous one.
—Step-by-Step Graphics

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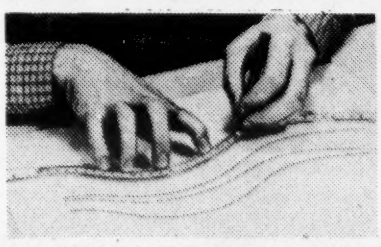

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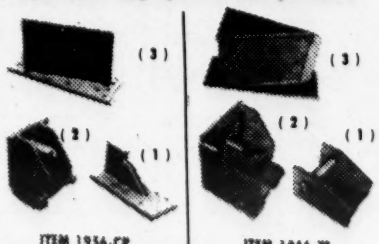
You'll hear snorts of derision when you mention Shopsmith to a professional woodworker. Next, you can expect nasty comments pertaining to jack-of-all-trades-master-of-none, lightweight, and so forth. While it is true that this machine is not well suited for work with heavy structural lumber, it'll easily handle most anything a home craftsperson will ask it to do. It is at one time (with a bit of fiddling) a drill press, lathe, table saw, sander, and boring machine. With attachments it can do more, but it won't take up more space. And that's the great advantage of the Shopsmith: it's not an awful lot bigger than an ironing board. You can have a home shop in an apartment, condo, mobile home, boat, or anywhere else a whole roomful of power tools won't fit. Unlike imported imitations, Shopsmith is backed by a solid dealer network and what amounts to a cult of users. Local classified ads often have them used at substantial savings. —J.Baldwin

Burden's

There's not much "war surplus" around these days, so old-time stores like Burden's have concentrated on hydraulic and pneumatic components, electronic parts, industrial leftovers, and discounted tools. As with all surplus outlets, you are at an advantage if you have some experience with this sort of merchandise; there are few explanations beyond the specifications. Imaginative use of a catalog like this can lead to unexpected new capabilities; indiscriminate use can lead to an overstuffed garage. —J. Baldwin

Burden's
Surplus Center
Catalog **free** from:
Burden's Surplus Center
P. O. Box 82209
Lincoln, NE 68501

"Build-Your-Own"
Hydraulic Log Splitter Components



ITEM 1956-CP **$118.95** F.O.B. Lincoln

ITEM 1956-TE **$119.50** F.O.B. Lincoln

• Essential components for log splitter builders. 3-component sets consist of (1) butt block, (2) sliding block, (3) splitting wedge. **ITEM 1956-CP** for use with clevis end cylinders; **ITEM 19-56-TE** for cross tube cylinders with 1-1/2" diam. piston rod.

Cab Heater

$49.99
F.O.B. Lincoln
Shpg. 10 lbs.

11-1/2" x 8-1/4" x 8-1/4"

• **ITEM 28-1028** - - Brand new, made by RED DOT. For use on campers, truck cabs, busses, etc. to provide extra heating. Beige finish with grillwork to protect exchange fins.

• Two speed fan operates on 12-VDC. Provides 230-CFM airflow on high speed. Maximum output, 2300-BTU's per hour. Motor draws 3.3-amps. Water connections are 1/2" NPT.

ITEM 28-1028
Cab Heater
Illustration Showing - Rear View

2-Ton Pickup Truck Box Hoist with Electric-Hydraulic Power Pak

• Heavy duty, electric/hydraulic unit designed for operation on 1/2-ton pickups with standard 8-foot boxes. Will dump loads up to 2-tons less than 40-seconds, 45-degree dumping angle.

• Easy and simple to install. Will not alter the profile height of truck body to any appreciable degree. Supplied with the ENERGY EMC-16 Remote Control Power Pak (same as our Item 9-038) which is especially designed for the SF-2 pickup hoist. Power Pak includes electric-hydraulic pump, dash push-botton, wiring and mounting bracket.

• **SPECIAL NOTE:** Hoist is not designed for use with pickup that has gas tank attached to the box. Not recommended for use on '69 and '70 Chev. or GMC 1/2-ton pickups.

Hoist SPECIFICATIONS	Power Pak
• Load capacity 4000-lbs. at 2000-PSI	• Operates on 12-VDC
• Single-acting type	• Pressures to 2000-PSI
• Cylinder bore/stroke 3-1/2" x 8-11/16"	• Volume 1.1-GPM
• Chrome plated rod	• Outlet 1/4" NPT
• Dump angle 45°	• Built-in relief valve, ball check, control valve
• Lift time 37-seconds	• Reservoir cap. 1/2 gal.
• Shpg. wt. 180-lbs.	• Shpg. wt. complete with Power-Pak, 230 lbs.

HOIST ONLY
ITEM 3-924H
$499.95

(COMPLETE OUTFIT)
ITEM 3-924
$789.45
Prices F.O.B. Lincoln

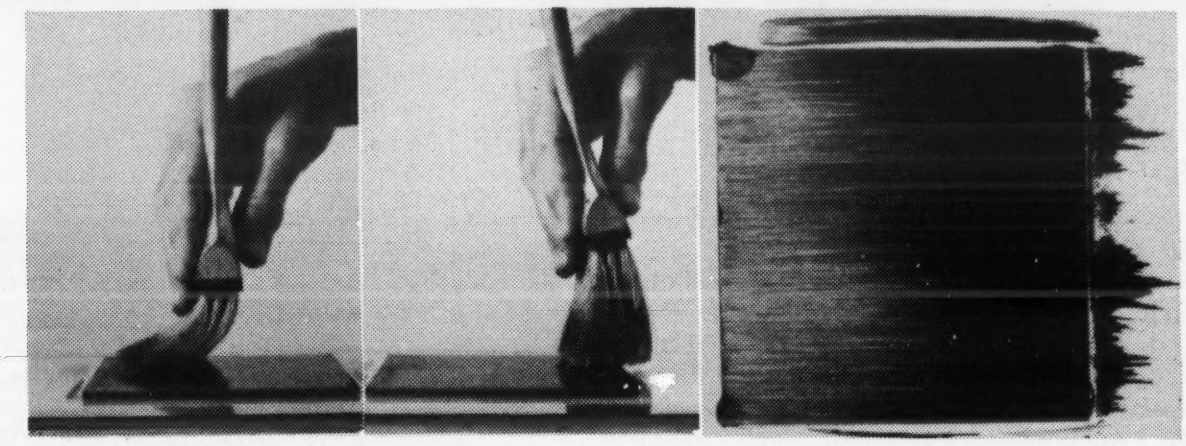
Fountain Pump

FOR DISPLAY FOUNTAINS
AIR CONDITIONERS
ROCK GARDEN POOLS
AQUARIUM CIRCULATION

$12.95 F.O.B. Lincoln

• **ITEM 2-948** - - New surplus. Excellent for fountain display pump Also useful as circulating pump for evaporative air conditioners, etc. Delivers 1-GPM at 2 ft. height above pump. Shaded pole 115-VAC motor. 2 discharge ports for 3/8" I.D. tubing. Size 4-1/4" x 2-3/4" x 2-3/4". Shpg. wt. 2 lbs.

115-VAC



► ***The Apple.*** **1974. Author's collection.**

•
(Left to right) blender's badger hairs are pressed to the glass as the blending begins.

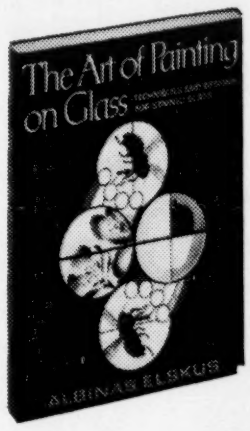
To assure shading, the pressure on the hairs is released toward the edge of the glass.

Sample of a shaded matt.

The Art of Painting on Glass

A marvelous book on vitreous painting by a man who clearly loves his craft. Albinas Elskus gives a personal and comprehensive discourse on paints and how to mix them and explains the necessary tools and equipment a beginner would need. Most of the book is devoted to the techniques involved in painting on glass, including designing, tracing, matting, staining, enameling, etching, and firing. Full of wonderful photographs and drawings.

—David Jouris

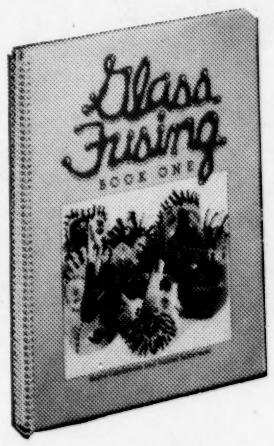


The Art of Painting on Glass
Albinas Elskus
1980; 147 pp.
$12.95
postpaid from:
Macmillan Publishing Co.
Order Dept.
Front and Brown Streets
Riverside, NJ 08075
or Whole Earth Access

Glass Fusing

Here is a beautifully designed manual on the basics of warm glass (vs. cold glass, as in stained-glass work). It's loaded with clearly written technical information on kilns, tools, supplies, firing, fusing, annealing, sagging, slumping, molding, and finishing. And there's an extended appendix which includes a helpful "glassery" for definitions of glassworking terms and a list of suppliers. This book also has some of the best illustrations I've seen — with hundreds of color photos. It is practically impossible to look at this work and not be inspired to try it yourself. Wow!

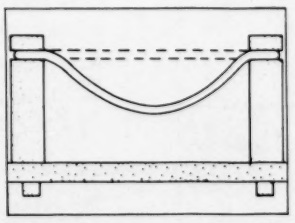
—David Jouris



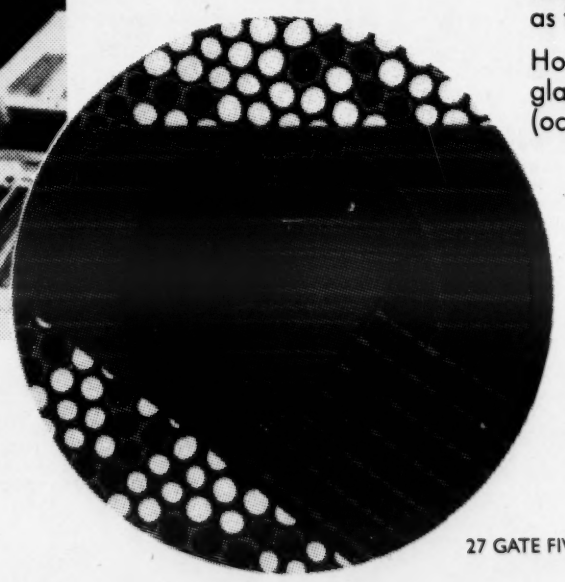
Glass Fusing
Boyce Lundstrom
and Daniel Schwoerer
1983; 137 pp.
$19.95
($21.45 postpaid) from:
Vitreous Publications, Inc.
Camp Colton
Colton, OR 97017
or Whole Earth Access

▲ **Klaus Moje laying up one of his pieces.**

► **Klaus Moje made this bowl by fusing 1/8" x 3/8" glass strips together, then "slumping" them into shape.**



Slumping **is the downward sinking of glass by its own weight as it is heated, while retaining uniform thickness.**



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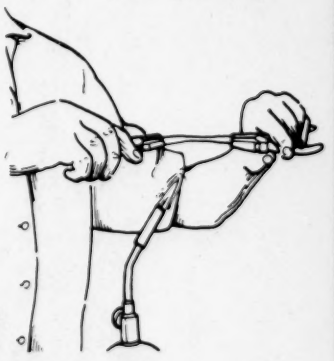
Testing for compatibility:
Cut a small piece from each of two different glasses. Each piece should be approximately 3/16" to 1/4" wide, and 3" long. Place the two pieces of glass together and grasp securely with pliers. Use a torch to heat them until they are tightly fused together. . . .

Holding another pair of pliers in your other hand, attach them to the top of the fused glass.



Quickly pull the glass by stretching your arms apart as far as possible.

Hold this position until the glass "sets" or becomes brittle (occurs within a few seconds).

Break the two ends off with pliers. The glass strand should be at least 12 inches long.

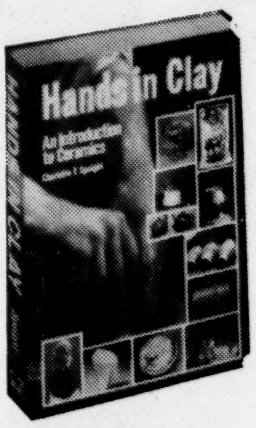
If the piece remains straight, the glasses are compatible. If the piece curves more than 1/4" for every foot, the glasses have unequal coefficients of expansion and will not sufficiently fuse together.

Hands in Clay

This is the most detailed of the general texts that I know. Almost half the book is about historical ceramics, showing the enormous variety of ways clay has been used over the centuries, with lots of good pictures of ancient pots and diagrams of methods and tools used. The second half focuses on your hands in clay, explaining various methods (handbuilding, making sculpture, working on the wheel and casting, surface treatments), glazing, and firing. Glaze chemistry is explained in the Appendix, with a good example of glaze calculation, too. —*Mary Law*

◄

Kenneth B. Beittel adds a coil to a large pot made with a combination of techniques — throwing, coiling, and pinching. Supporting the coils on his shoulder, he starts to curve in the upper part of the pot.



Hands In Clay
Charlotte F. Speight
1983; 348 pp.
$17.95
($19.95 postpaid) from:
Mayfield Publishing
285 Hamilton Avenue
Palo Alto, CA 94301
or Whole Earth Access

Hands working in moist clay have shaped it into sculpture or pottery for thousands of years.

Firing in Africa has traditionally been done on the open ground. Here, Ashanti women of Ghana arrange pots for firing. As many as 300 pots are fired at one time.

•

Clay, like bread, is improved by the action of bacteria. It needs to be left alone for a period of aging after it has been mixed, allowing the water to permeate the particles completely. If the clay is aged for more than a few days, bacteria start to form. These bacteria develop acids and gels and secrete enzymes that help break the clay into smaller particles, increasing its plasticity. Two weeks will probably ripen the clay, although most potters say the longer the better. Legends tell us that ancient Chinese potters prepared clay to be put aside for use by their sons and grandsons.

The ordinary construction-worker costume consists of knickers, knee socks, and *jikatabi* (high-top work *tabi*).

New Fashion Japan
Leonard Koren
1984; 176 pp.
$24.95
($27.45 postpaid) from:
Kodansha International
Mail Order Department
P. O. Box 1531
Hagerstown, MD 21741
or Whole Earth Access

New Fashion Japan

A Kimono: three kinds of fabric sewn together, two rectangles overlapping, a simple covering of the human form. Then she lifts her arms. An open square appears under each — windows into another dimension. Japanese design has always taken paradox into its folds, combining blue cotton fabric with ornate embroidery, or many different fabrics into a basic work garment: simple yet complex.

The designers in this exquisite book of photography and brief quotes on Japanese fashion speak like fashion monks — with deep understanding and respect for their thousands of years of fashion heritage. For them, fashion isn't something you put on in the morning; it's you and it's your culture. Worldviews are built into fashion design.
—*Jerri Linn and Jeanne Carstensen*

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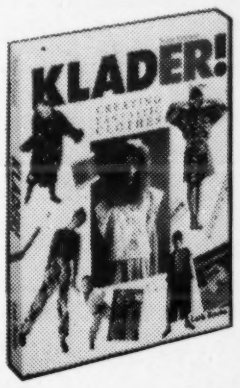
"Clothes must be comfortable, enhance one's beauty, be chic, express one's personality, and so on. But most importantly clothes should be something to improve human beings." —Shinji Fujiwara, Writer

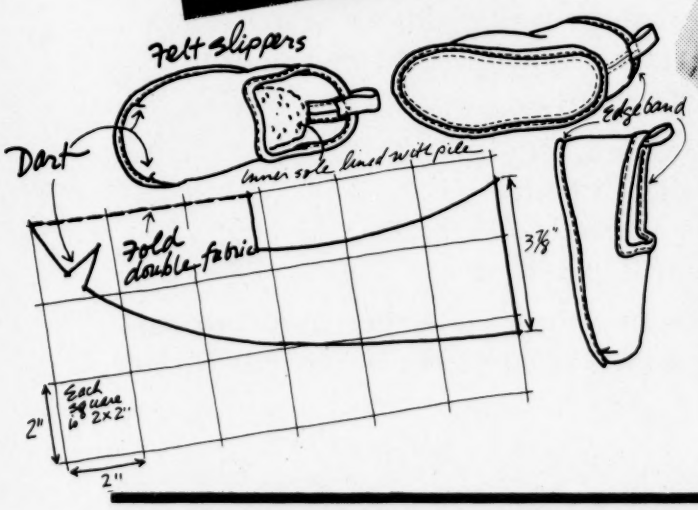
Klader!

Fun, fun, fun! Everything in this colorful Swedish book of fashion draws from the imagination. Try designing and making clothing for yourself that you've never seen before. Design your own image. Some pattern instructions are included to get you started on transferring your ideas into cloth — you'll need some knowledge of sewing. But ***Klader!*** *won't dissuade you from trying anything.*
—Jerri Linn



◄ **Chamois vest**

Klader!
Nina Ericson
1983; 175 pp.
$17.95
($19.20 postpaid) from:
Lark Books
50 College Street
Asheville, NC 28801
or Whole Earth Access



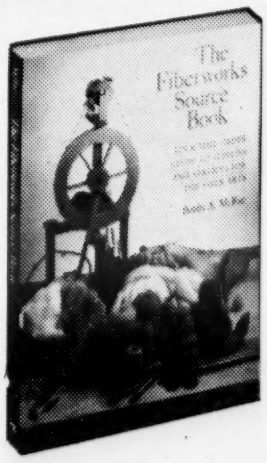
Personal ties are hard to find — but easy to make.

The traditional apron is always worn to protect and embellish the dress. Tibetans are adept at combining the practical with the decorative in their use of trimmings and patterns. In most countries the apron is no longer considered an essential garment.

The Fiberworks Source Book

Keep a firm grip on your Visa card when you delve into this succulent catalog — the variety alone will make you greedy. You'll find goodies such as rubber stamps (for use with permanent fabric color), the addresses of professional associations and schools, and every sort of stuff to use for knitting, weaving, spinning, papermaking, basketry, and just about everything else that can possibly be construed as fiber. *—J. Baldwin*

[Suggested by Marilyn Green]



The Fiberworks Source Book
Bobbi A. McRae
1985; 223 pp.
$9.95
($11.45 postpaid) from:
Betterway Publications
P. O. Box 469
White Hall, VA 22987
or Whole Earth Access

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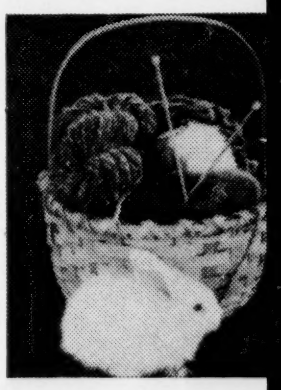
Straw Into Gold, 3006 San Pablo Avenue, Berkeley, CA 94702. Telephone (415) 548-5241. Mail Order, Retail Shop; V/MC; Established in 1971. Straw Into Gold carries many materials for basketmaking; fiber rush, Fiber Flex, reed, raffia, untreated pigtail raffia, and seagrass in various sizes. Send a SASE for a current catalog and price list.



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Deaton Farms' Angora, 9095 Paddock Road, Eaton, OH 45320, Telephone (513) 456-5630. Manufacturer; Mail Order; Established in 1981. Diane Deaton, of Deaton Farms' Angora, raises angora rabbits for the special fibers that they provide. She has white angora rabbit wool available. She also is interested in doing custom spinning, as well as teaching workshops on the angora rabbit.

Send $3.00 for Diane's basic catalog and angora sample.

(By the way, this is no ordinary catalog. It contains extensive information on angora rabbit wool, angora fiber chemistry, spinning angora wool, dyeing the wool, designing angora yarns, and instructions for a French angora beret. Well worth $3.00!)

A Time For Thieves

by Janet Dallett
illustrations by
Kristen Throop

Janet Dallett makes a physical home in the Pacific Northwest and a mental home in the dream world of her community. The connections she uncovers between the two yield perspective on problems that don't make sense. In this story she examines the curious phenomenon of teenagers who steal for reasons that have nothing to do with economic need. Her last piece, "When the Spirits Come Back," appeared in our Spring 1986 issue.
—Richard Nilsen

AS SOON AS I WALKED INTO THE MOTEL OFFICE, the white man running it used me as an excuse to abuse his Indian wife. No matter what she said, he wouldn't stop yelling at her that I probably wanted a cabin instead of the room I asked for. I stood there signing the register, thinking about walking out and imagining telling him to be quiet and leave her alone, knowing if I did it would only be worse for her later. It wasn't what I expected to find on the Quilleute Reservation, out on the Washington coast at the "true ocean," 150 miles from my home in Seal Harbor on Puget Sound.

It was the true ocean all right. To get to the beach I had to climb over massive timbers thrown like giant pick-up sticks. When I finally reached the beach, one of the biggest waves I've ever seen rose up from nowhere, way out in the water. Transfixed, I watched as if I didn't know what was going to happen, until the icy saltwater boiled up to my waist and I had to hang on hard to the uprooted end of a giant tree not to get pulled out to sea. Then I fought my way back over the logs to motel room #13, not the cabin the white man insisted I would want. After my clothes dried, I sat on the porch watching the waves crash every which way, while the east wind blew their tops back like women's long hair. Later, four wild horses came looking for handouts, their coats thick and burred from winter.

The next morning I found a trail to walk in the forest near the reservation. A little way past the parking lot was a sign that had been there a long time, carefully incised on a wooden plaque, in sober Park Service letters:

3rd Beach Trail
Beach 1.3 mi
Parking lot subject to theft:
Are your valuables secure?

I stopped and thought about it for a while, then started to walk again. Further on, just past the co-ed outhouse, the Park Service had put up a second sign. It said:

This path takes you to the edge of the
Olympic wilderness. From a human-shaped
world you are about to step into terrain
dominated by other forces.

I stood there perplexed, reading it over and over to be sure it said what I thought it did. There was a sound and I looked around uneasily before I realized it had begun to rain, the slow, steady drizzle of the Olympic Peninsula. I went on, pondering:

This is the borderland. Here spirit and nature intersect the human world, wiping out our fantasies of superhuman power, childish scratchings on the cosmic blackboard.

Native People know that only gods can be perfect. Whatever man or woman creates must have a human flaw or the soul will become trapped. Native rugs and blankets are made with an irregular thread, a path for the soul to get out. Without it, life would get stuck, unable to move on into the unknown new.

Will we *ever learn how to let the soul go free?*

This perilous trail through no man's land is the way to human wholeness. Perfection doesn't live here any more. The thieves have come.

SEAL HARBOR WAS a little paradise when I moved there three years ago. I never locked my door. There was no need to. Now there is an epidemic of petty crime. The police blotter printed in the Seal Harbor *Advocate* carries half a dozen stories of thievery every week. Wrongdoers tend to be very young. Most are under 25, many younger than 18.

Stephen is 20. He has been stealing since he was 12, maybe longer, although he did not get caught until he was 15. He and his mother Tanya are very close. She has always been a good mother to him. During his years of crime, she has treated him with the same fair, reasonable, and knowledgeable attitude with which she raised him.

Stephen is dazed. He has no idea why he steals, over and over again, in spite of the consequences. When his mom talks to him, everything she says is so reasonable he feels she must be right. She is always right. He knows he would not be in such trouble if he had listened to her.

Stephen is haunted by a dream he had when he was a very small child:

"Me and my mom are starting to cross a bridge. Suddenly she leaves. She turns around and goes back the way she came. There is a seal, an enormous bull seal. It comes toward me. I'm terrified. I want my mom. It is going to attack and eat me. I am screaming for my mom."

He has no idea what the dream means. In the outside world his mother has never abandoned him. In the outside world he knows seals rarely attack people. But he remembers the dream and is afraid.

This perilous trail through no man's land is the way to human wholeness. Perfection doesn't live here any more. The thieves have come.

I don't know what it means either, but I have some ideas. Early childhood dreams, remembered during adulthood, often reveal an archetypal structure that will dominate the individual's psyche for much of his life. Stephen's dream hints that he has a fate as big as a bull seal, a very masculine fate already prefigured when he was a small child. When the moment comes for him to cross into his own life, separate from his mother, he wants to stay with her because he is afraid of the initiatory experience. As a result his totem animal, symbolizing a deeply instinctive level of the man he is meant to be, approaches him in an assaultive, destructive way. Because he fails to grow willingly into his masculine identity, it simply takes him over in a negative form that can destroy his life. He is eaten up by the compulsion to steal.

Fate is like that. You can't escape it, but the face it turns to you, its effect on your life, depends on your attitude toward it. If you aren't friendly to it, its unfriendly side will be activated.

Tanya is well thought of in Seal Harbor. For her sake, Stephen has been given every opportunity to be responsible for his actions and receive a light sentence. The juvenile court was lenient with him, but soon after his 18th birthday he ran away from a scheduled appearance in adult court and went to Arizona, looking for a savior in the form of his father. When his father refused to hide him, Stephen realized he was in deep trouble. He telephoned Tanya to talk things over with her. She explained that if he came back to Seal Harbor to face the charges, he might get off fairly easily, even though he had damaged his case by running away.

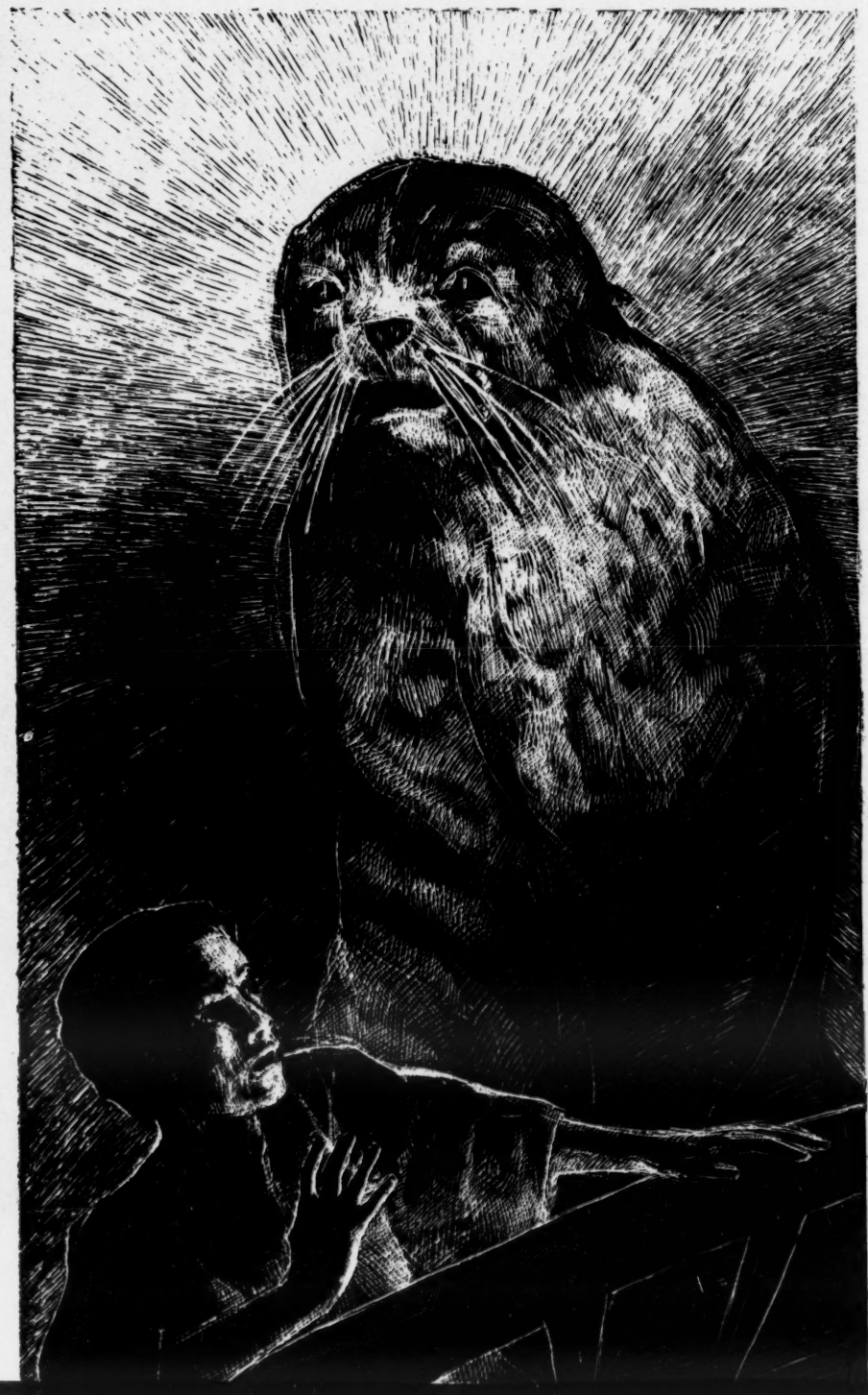
Stephen was pissed off that Tanya would not let him live at home with her and his two sisters any longer, but Tanya's friend Maria offered him a room in her home if he would come back and face the music. He decided to follow his mother's advice, and returned to Seal Harbor to live with Maria and her two young sons until he was sentenced.

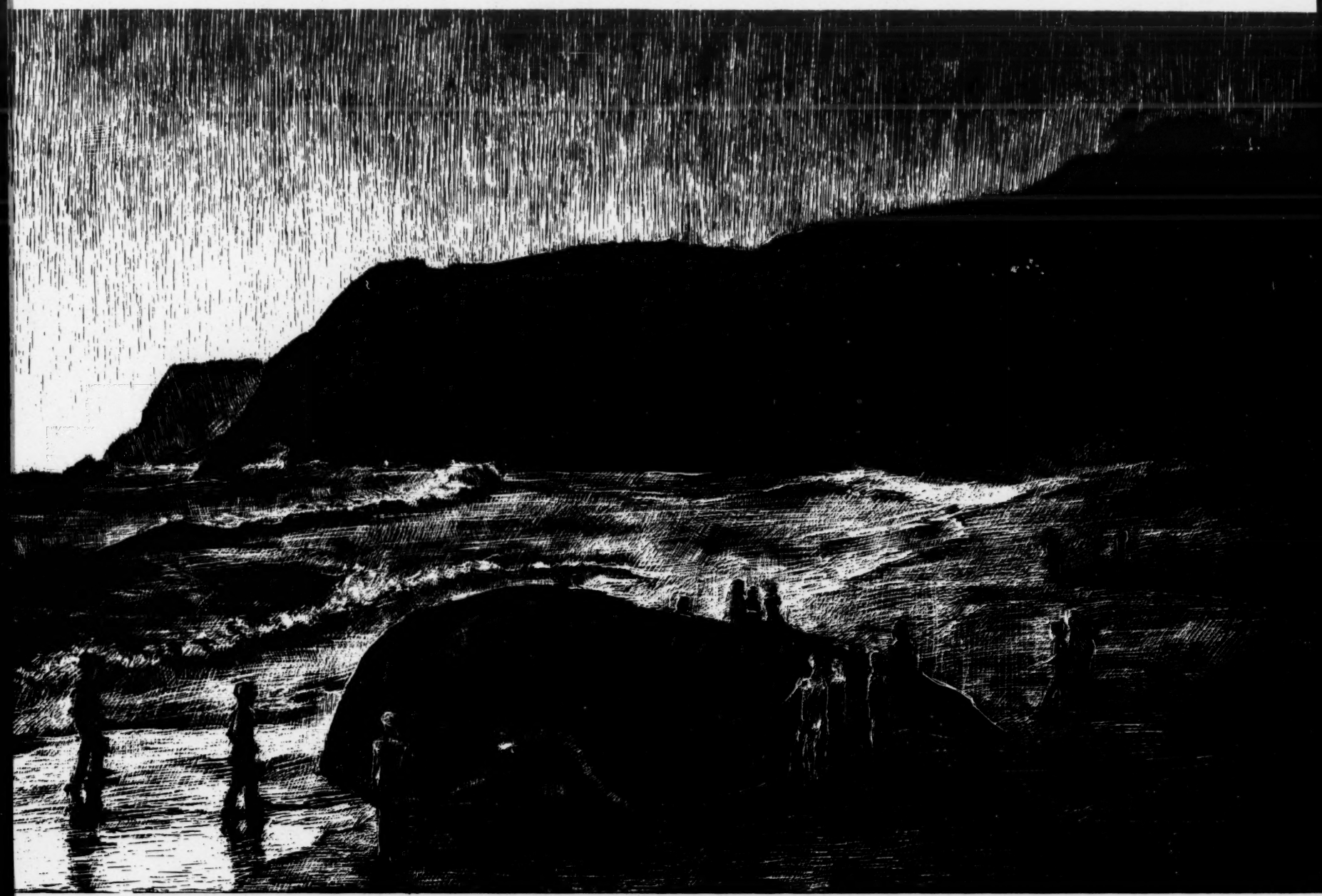
Tanya dreamed:

"A whale has been beached at Seal Harbor. For a long time it looks as if it will die. Then people come and put water on it and talk to it. Eventually there are enough people to begin to move it back into the water. The tide comes up and the people gather around the whale, somehow moving it without touching it. Slowly, slowly, the whale is set free and swims away."

Tanya thought the dream meant that Stephen would not have to go to prison. I thought otherwise. A whale is much bigger than Stephen, Tanya or me. I thought the dream meant that Stephen's trouble is part of a very big trouble in the community, perhaps in the culture as a whole. I thought it meant that Stephen's thievery embodies an archetypal problem that belongs to you and me as well as him. Stephen has become one of society's scapegoats for trouble in the realm of the human spirit, a problem as big as a beached whale and as masculine as a bull seal.

Swimming in the sea of the psyche, marine mammals emanate a profound sense of potency and grace. In the outside world, their existence has been endangered by a distortion of the natural masculine spirit, humankind's compulsive greed to steal all the earth's resources and power. We hardly know what it means any more to respect the divinity of life living by its own rules in its own element. Our desire to possess everything leaves the whale high and dry. Only when enough people honor the natural life of the spirit can it be restored to its rightful place and the big trouble put right. Then Stephen and others like him will not be compelled to steal.





THE WEEK THAT TANYA dreamed of the whale, my friend Elizabeth in Southern California also dreamed a big dream, whose implications reach far beyond her personal psychology into the roots of contemporary life. A startling picture of divine power bequeathed to thieves, it hints at the nature of the archetypal matrix that empowers thievery:

"I am outside a church. A woman friend begs me to go inside with her to say goodbye to a teenaged boy who has died and is lying in state. I am reluctant to go in and see his dead body, but go for the sake of my friend. The boy in the coffin is blond and handsome, the embodiment of the young hero. A woman caretaker is there to tend the body. A strapping, muscular teenager, he begins to move. Then he thrashes around, gets out of the coffin, and tries to frighten the caretaker. She knows he is in the last throes of death and is not dangerous. He is moving like this because he was once so vital and young and vigorous, so full of energy, that even in death some life remains in his body.

"Three young thieves are sitting behind us. They are very threatening. They are friends of the dead boy, who now gets back into the coffin and begins disposing of his property. He throws things out of the coffin, one at a time, and each time one of the thieves takes it. We think the women should get something. It doesn't seem right that the thieves should get everything, but there's nothing we can do to stop them."

Elizabeth's dream expresses something of what is happening in this culture as we approach the end of the century and move into the borderland between the old, Christian era and whatever is to come. She is called into the church, the official spiritual container of the passing age, to witness the death of the blond god/hero who is an image of the perfect man, an archetype in the last throes of its death. It is as if she is told, "God is dead," but his possessions, the energy and power of divinity, are passed on to three young thieves in whom the masculine spirit is alive and well. They are intent on keeping it out of the hands of the women.

Caretaken primarily by women, the masculine spirit in this country has been in trouble for several generations. Just as the dream's dying

hero is tended by a woman, so most men alive today were raised primarily or exclusively by women. Many spent their formative years with divorced or unmarried mothers. If their mothers worked, women provided day care. An earlier generation had fathers who lived at home but worked away from home and showed little real interest in their sons, leaving the caretaking entirely to mother. When the boys went to school, their first teachers were women. Now grown, these men are quick to acknowledge that they don't know what it means to be a man, nor how to be adequate role models for *their* sons. The cycle then goes on for another generation.

Lacking powerful and positive male models, a man feels illegitimate, without a conscious sense of identity and strength. As a consequence he may be overwhelmed by the femininity that lies in his unconscious, becoming possessed by passivity and the expectation that someone will take care of him. The nurturant female image in his psyche, the mother archetype, then turns negative, and he falls into a chronic state of passive rage against women. The primary motive force in his life is to keep his power away from them. Because he finds no cultural forms to nurture his masculinity, it can only live in antisocial ways.

When his true spirit is cut off entirely, lacking even negative expression, a man becomes a manikin who acts out women's unconscious male images instead of real masculine strength. He is like a dead man throwing his weight around. On the surface, such a man may appear to be the very model of perfection, what every mother imagines she wants her son to become. But underneath he is lifeless, disconnected from his feelings and instincts, and spiritually empty.

The death of the blond god and subsequent activation of underworld heroes is currently visible in films and other vehicles of popular culture. The boy scout type of film hero, characterized by goodness and light, is giving way to the image of the young hood. For most contemporary young people, it is the thug who has sex appeal.

There was a time when young men of "good family" were rarely to be found in jail. No more. The young thief is everywhere, underscoring the scarcity of positive adult masculine role models. Few men today can find their connection to maleness in the shining blond hero. *That* god is almost dead. He has given his power to the thieves, and Stephen has gotten some of it.

THE TELEPHONE was ringing. I came up fathoms into consciousness and peered at the clock's luminous dial. 12:15.

"Hello?"

Maria's voice was muffled. "I'm sorry to bother you at this hour, Janet. I don't know what to do. Stephen is out. The boys went into his room to get a blanket a little while ago. They found a whole bunch of stuff in there. A computer, a camera, some other things I know aren't his. They have Seal Harbor School System inventory numbers on them. He must have stolen them."

My numbed mind tried to reject what it heard. I wanted to go back to sleep. I mumbled something helpless, then realized that Maria needed company, even if I had no idea what to do. Hastily I put on some clothes and went to her house. Tanya was there too. The three of us discussed what to do. We decided to wait until Stephen came home, confront him with what had been found, and go with him to the police.

The longer we waited the more absurd I found our plight. Three women waiting to insist that a young man behave like a man. Where were the men?

We named the men we knew. Maria's husband was out of town. Tanya's partner did not get along with Stephen. There was no man in my life. We thought of friends, community leaders, Stephen's therapist, other therapists. One at a time we called and asked them to join us in confronting Stephen. One by one the men explained, quite reasonably, why they could not. I began to get angry. What was the matter with these men? Why didn't their instincts mobilize to help the boy? No wonder he was in trouble!

Discouraged and exhausted, we kept trying. Finally Donald, a local counselor, agreed to help. He suggested that we put the stolen items back in Stephen's room and wait until the next day, when Stephen's lawyer would be in his office and we could ask his advice.

When Stephen came home at 4 a.m., we were all asleep in our beds and he suspected nothing. Later we discovered that he had robbed several stores that night and hidden the loot in Maria's shed.

The next day Tanya, Donald and I met Stephen for lunch and told him what we had found in his room. He was enraged with his mother for betraying him. He lied that he was holding the stolen items for someone else. We pointed out that, even if it were true, he was liable as an accessory. He could hear nothing but his rage at his mother. She had never deceived him

before, but today she had invited him to lunch and set him up for a confrontation.

We took Stephen and his loot to his lawyer, who gave it to the police without revealing its source. Pending his appearance in court, he continued to live with Maria. A week later a police search uncovered many more thousands of dollars' worth of stolen goods in Maria's house and shed. The next day, on Good Friday, Stephen was arrested and held without bail.

In the Seal Harbor jail, Stephen injured an officer by dropping a pile of encyclopedias on his head. He wore a stolen jacket to court the day he was sentenced to ten years in the state penitentiary. He was enraged. And relieved.

HERMES, THE ANCIENT Greek god of thieves, had close equivalents in the Roman Mercury, Germanic Wotan, and North American Coyote. For all practical purposes, Hermes was born thieving. He crept out of the cradle to steal the cows that belonged to his older brother Apollo, the established sun god of reason, order and light.

Thieving is not the only activity of this elusive, multifaceted god. Among his many functions, he rules over the borderland between one thing and the next, typically appearing during transitional times like the one in which we are now living. He is a shape-changer, one of whose many forms is serpent. As such, he is secret cousin to the serpentine tempter who put an end to Paradise. Just as Adam and Eve lost their comfortable existence in a perfect garden dominated by a perfect god, receiving instead the gift of real lives in the flawed human world, so Apollo lost his comfortable status as property owner, but his life was enriched by the gift of music when Hermes made him a lyre. Thus are we transformed by the chaos and loss the thief creates.

In his paper *The Spirit Mercurius,* C. G. Jung summarizes "The Spirit in the Bottle," a fairy tale which penetrates deep into the psychological meaning of the Mercurial spirit, the archetypal thief in the contemporary psyche:

"Once upon a time there was a poor woodcutter. He had an only son, whom he wished to send to the university. However, since he could give him only a little money to take with him, it was used up long before the time for the examinations. So the son went home and helped his father with the work in the forest. Once, during the midday rest, he roamed the woods and came to an immense old oak. There he heard a voice calling from the ground, 'Let me out, let me out!' He dug down among the roots of the tree and found a well-sealed glass bottle from which, clearly, the voice had come. He opened it and instantly a spirit rushed out and soon became half as high as the tree. The spirit cried in an awful voice: 'I have had my punishment and I will be revenged! I am the great and mighty spirit Mercurius, and now you shall have your reward. Whoso releases me, him I must strangle.' This made the boy uneasy and, quickly thinking up a trick, he said, 'First I must be sure that you are the same spirit that was shut up in that little bottle.' To

prove this, the spirit crept back into the bottle. Then the boy made haste to seal it and the spirit was caught again. But now the spirit promised to reward him richly if the boy would let him out. So he let him out and received as a reward a small piece of rag. The spirit said, 'If you spread one end of this over a wound it will heal, and if you rub steel or iron with the other end it will turn into silver.' Thereupon the boy rubbed his damaged axe with the rag, and the axe turned to silver and he was able to sell it for thousands of dollars. Thus father and son were freed from all worries. The young man could return to his studies, and later, thanks to his rag, he became a famous doctor."

Right at the beginning of the story we are told the conditions under which the thieving spirit is activated: The resources available for the university have dried up. Like Stephen, the hero in our tale can no longer find meaning in the path of reason, order, knowledge and light. In order to renew his resources he has to go back home to the forest, a natural place where achievement is not the dominant power. Here, in deepest nature, the mysterious Mercurial spirit is uncovered. It has been shut away, bottled up in glass and hidden in the roots of a giant tree.

Glass, with its qualities of transparency and rigidity, often symbolizes reason or intellect. Reason bottles up and contains the natural spirit, one of whose forms is human emotion.

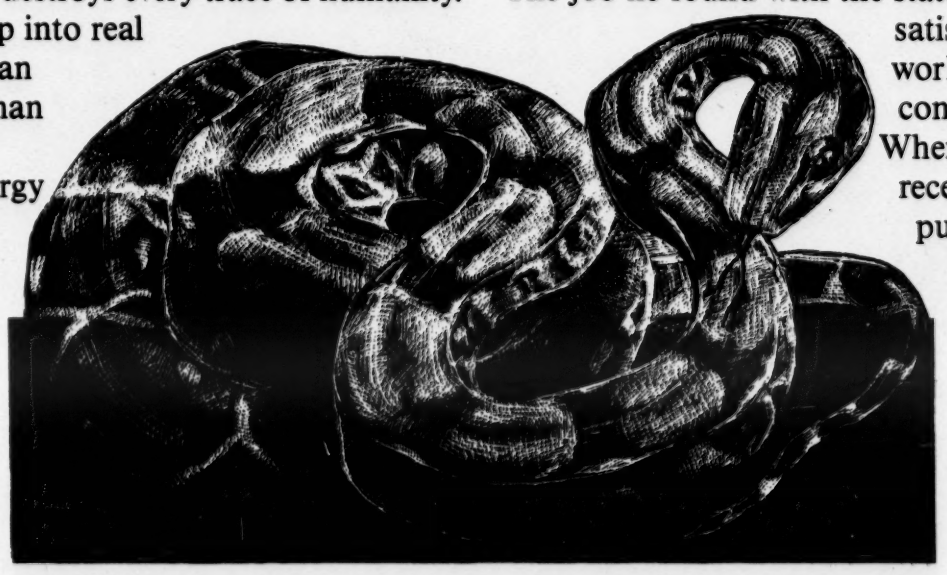
In Freud's day sexuality was an obvious instance of the bottled-up spirit. In our time, anger is more likely to be repressed. Whatever its specific shape, the spirit buried in each of us speaks of how we really feel and who we really are, in contrast to idealized notions about how we ought to feel and be. When control over human nature goes too far, people become too good to be true, too right to be real, too reasonable to be human. The drive for perfection becomes like a Nazi, whose compulsive demand that people be gods destroys every trace of humanity. By digging deep into real emotions, we can restore the human condition and recover the energy to go on in a new way.

As the tale reveals, however, it is dangerous to set natural energy free when it has been bottled up for a long time. It can become so big that it destroys a person. In this time when the prevalence of child abuse and domestic violence is getting so much public attention, and the threat of nuclear holocaust hangs like a perpetual black cloud, we have ample evidence for the destructive power of the spirit of nature released indiscriminately. If it is set free, the next step is to demonstrate that our ethical sensibilities are sharp enough to get it back under control. Only then can we relate to it safely.

Still, this natural spirit is an essential catalyst for healing the problem of the boy in the fairy tale, which is a major problem of our time and the problem that Stephen the thief is carrying. Resources are no longer available to pay for more control, more knowledge, more reason, more light, more righteousness. Perfection is a divine state, not a human one. To heal the deep wounds so many of us bear, we must gain access to the darkness and irrationality of real emotions, grounding ourselves in the flawed human condition that lets the soul go free. The thief is a primary catalyst now, as we step over the boundary of an old age and enter into the new. Ready or not, his time has come.

ON A SOMBER Northwest Sunday, Tanya cut her waist-length hair very short and put on black clothes. She searched her house for Stephen's possessions and burned them all in a ritual act of grief.

Nine months later Stephen was released from the cell he shared with seven other men in the Washington State Prison on McNeil Island. He was moved to a work camp, later to a tightly supervised communal house where he was given counseling and an opportunity to look for employment in a town not far from Seal Harbor. The job he found with the state park service satisfies his wish to work outdoors, in contact with nature. When he was paroled recently, his first purchase was a pet snake. ■

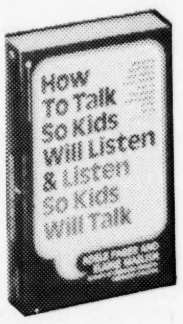


How To Talk So Kids Will Listen & Listen So Kids Will Talk

*Reading Adele Faber and Elaine Mazlish's first book (**Liberated Parents/Liberated Children**) changed my life. It was the first time I read about accepting and speaking from feelings. It took the idea of personal responsibility and translated it into action. **How to Talk** makes the information about accepting feelings, talking about feelings, engaging cooperation, alternatives to punishment, encouraging autonomy, praise, and freeing children from playing roles accessible through its liberal use of cartoons, and realistic dialogue. All of these ideas do much to help our children attain a positive self-image and to reduce disharmony in the home. This is tangible stuff you can read and use.*

—Peggy O'Mara McMahon

How To Talk So Kids Will Listen and Listen So Kids Will Talk
Adele Faber
and Elaine Mazlish
1980; 242 pp.
$5.95
($6.95 postpaid) from:
Avon Books
P. O. Box 767
Dresden, TN 38225
or Whole Earth Access



I. DESCRIBE.

Describe what you see or describe the problem.

Instead of

It's hard to do what needs to be done when people are telling you what's wrong with you.

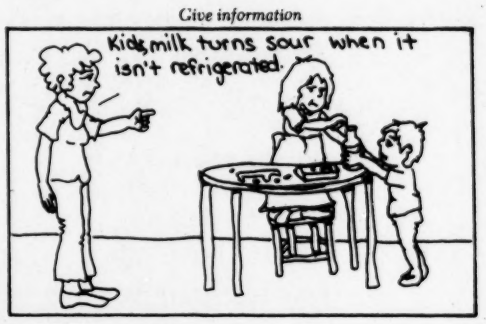
Describe

It's easier to concentrate on the problem when someone just describes it to you.

II. GIVE INFORMATION.

Instead of

Give information



Information is a lot easier to take than accusation.

Going out dancing is wonderful, but there's one thing wrong with it — you always have to keep your eyes on your partner, and you never get to check out all the other people who are whirling around you on the dance floor. So we're going to do a dance now that is the opposite of that — this time you're going to get to look at everybody *but* your own partner!

●

Introductions

Directions to the Players: Imagine this is your birthday and you have called all of us together for a giant birthday party. You know everybody here, but nobody else knows anybody at all. So of course you want to get us all to meet each other. So your job in the next three minutes is to introduce everybody here to everybody else here. Don't introduce yourself to anybody, just go up to someone like this and say "Hi, what's your name?" ("Paula.") "Hi Paula, come on, I'd like you to meet somebody . . . Hi, what's your name?" ("Dave.") "Hiya Dave, this is Paula, Paula this is Dave." now, when you get introduced to somebody, really do it up right — get a good look at the person, shake hands, give a big smile . . . Okay, do you have the idea? You have three minutes to introduce everybody here to everybody else! Go to it!

◄

One punctuation mark is to put your thumbs together under your nose and then wiggle the rest of your fingers. Let's all try that one . . . That punctuation mark means "I'm finished, but before the next person goes let's all change places in the circle as quickly as possible and the person on my left will go."

Playfair

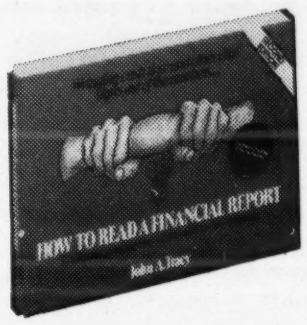
Two rules: no competition and no equipment. When you get a crowd of people involved in these imaginative body routines, EVERYBODY has fun. (Try Octopus Massage or Amoeba Tag.) Because the goal is to laugh and holler your way to cooperation, they're great for warming up a large group project — or a memorable party. Blows grumpiness and boredom right out of the water. Never fails.

—Kevin Kelly

Playfair
Matt Weinstein
and Joel Goodman
1980; 249 pp.
$9.95
($11.20 postpaid) from:
Impact Publishers
P. O. Box 1094
San Luis Obispo, CA 93406
or Whole Earth Access

How to Read a Financial Report

This is not an accounting book. It is a hard-nosed and clear analysis of what accounting information can tell you about your business, or any business. This understanding is vital when considering your needs for a loan or new capital, when selling a business or buying one, or when trying to cope with business problems. This is the best book on this subject, and the only book aimed at intelligent people with no academic accounting background.
—Michael Phillips



How to Read a Financial Report
John A. Tracy
1983; 161 pp.
$9.95 postpaid from:
John Wiley & Sons
Order Department
1 Wiley Drive
Somerset, NJ 08873
or Whole Earth Access

•

Behind all the numbers is a simple, vital concept you must never lose sight of — *cash flow.* Business is run by keeping money moving. Financial statements report *where the money came from, where it's invested for the time being,* and, most important, *how often it has turned over.*

Left Side	*Right Side*
(1) Current Assets	(1) Current Liabilities
(2) Property, Plant, & Equipment	(2) Long-term Liabilities
(3) Other Assets	(3) Stockholders' Equity

•

Clearly, earning an adequate profit is the key for survival and the manager's most important imperative. But the bottom line is not the end of the manager's task.

Managers must also control the *financial condition* of the business. This means keeping the assets and liabilities within proper limits and proportions relative to each other and relative to the sales and expense levels of the company. And, managers must *prevent cash shortages* that would cause the business to default on its liabilities or to miss its payroll. . . . Profit performance alone does not guarantee survival. In other words, you can't manage profit without also managing the changes in financial condition caused by the sales and expenses that produce your profit. Furthermore, the profit making activity may actually put a temporary drain on cash rather than provide cash inflow.

•

If the company could have stretched the average wait (or credit period) for paying its operating expenses from 9 weeks to, say, 11 weeks, it could have avoided an additional $36,000 of cash disbursements ($18,000 average operating expenses per week x 2 additional weeks of waiting to pay the expenses = $36,000). So the Accounts Payable and Accrued Expenses resulting from operating expenses have a significant impact on cash flow.

THE INTRAPRENEUR'S TEN COMMANDMENTS

1. Come to work each day willing to be fired.
2. Circumvent any orders aimed at stopping your dream.
3. Do any job needed to make your project work, regardless of your job description.
4. Find people to help you.
5. Follow your intuition about the people you choose, and work only with the best.
6. Work underground as long as you can—publicity triggers the corporate immune mechanism.
7. Never bet on a race unless you are running in it.
8. Remember it is easier to ask for forgiveness than for permission.
9. Be true to your goals, but be realistic about the ways to achieve them.
10. Honor your sponsors.

Intrapreneuring

This book is aimed at the corporation that wants to keep its entrepreneurs happy and creative, and at those entrepreneurs who need strategy for being effective within a corporation. Both sides of the coin are explored with many examples of people who developed significant new products within the confines of corporate life.
—Michael Phillips

Intrapreneuring
Gifford Pinchot III
1985; 368 pp.
$19.45
($20.95 postpaid) from:
Harper and Row
2350 Virginia Ave.
Hagerstown, MD 21740
or Whole Earth Access

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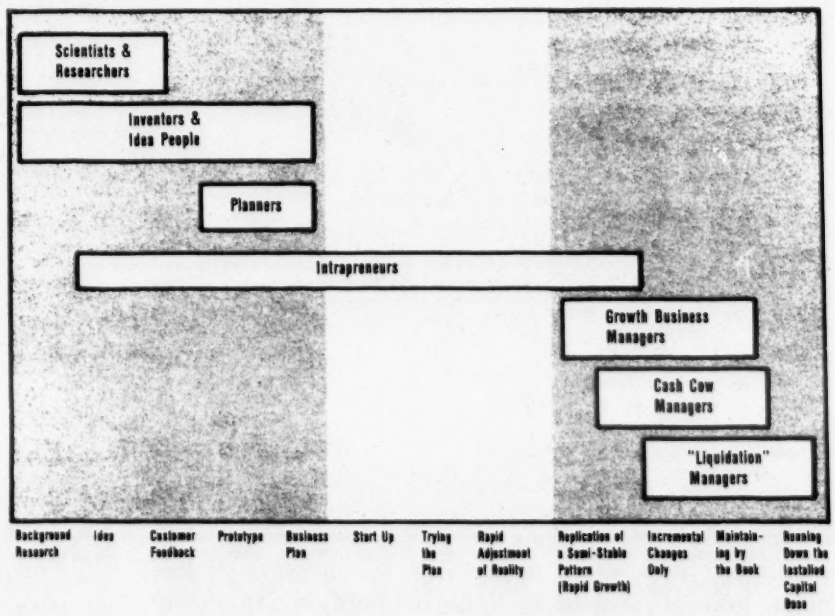
In almost every corporation, there exist large numbers of hard-boiled characters who no longer believe the platitudes that emanate from the corporate staff. They know the system backward and forward and know how to acquire what they need to get the job done, regardless of what the official system dictates. Whether he knows it or not, the CEO has turned large chunks of the corporation's assets over to these people and their informal network of swapping favors and equipment. All he can do under the current system is hope the corporation has chosen the right people.

•

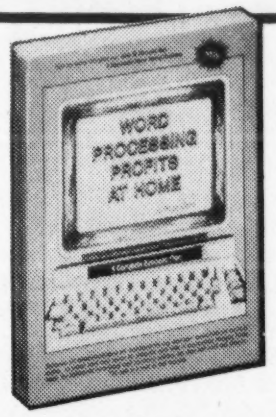
In the beginning no one else understands the intrapreneur's ideas well enough to make them work. As a result, others say it can't work. Intrapreneurs thus find themselves crossing organizational boundaries to do what are officially other people's jobs.

When intrapreneur Art Fry, the inventor of Post-it Notes (those now familiar yellow pads with the gently adhesive backs), was told by the marketing division his idea wasn't wanted by customers, he did his own market research. When manufacturing told him Post-it Notes were impossible to make, he worked out the production technology himself. No problem, no matter how far from his supposed area of expertise as a lab person, fell outside his responsibility, because Art was an intrapreneur.



Word Processing Profits at Home

You can do what typists do faster with a word processor. This book tells you how to make a business out of it — from your home or nearby office. —Jeanne Carstensen



Word Processing Profits at Home
Peggy Glenn
1984; 213 pp.
$14.95
($15.95 postpaid) from:
Aames-Allen Publishing Co.
1106 Main Street
Huntington Beach,
CA 92648
or Whole Earth Access

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As a general rule, once you can type a single page of double-spaced, non-technical text with pica type and standard academic margins in 8-10 minutes (with no more than three errors), you are ready to hang out your shingle. This is the *bare minimum*. Although typing speed isn't extraordinarily critical for all incoming jobs (sometimes you'll be given written or dictated work you can't read or understand), typing speed of at least 50 words-per-minute is the minimum industry standard.

•

One very excellent business customer for the home-based word processing operator is *another* person who is also working from home: consultants, sales people, small manufacturing operations, etc. Each year that money gets tighter and commercial office space becomes more expensive, the "cottage industry" explosion grows greater and greater.

•

Is the handwriting as easy to read as typed copy? If not, if it's so difficult to read that you have to slow down to type from it, then forget the per/page rate and charge by the hour. This is an example of why sometimes it doesn't matter if you type 50 words-per-minute or 100 words-per-minute. If you can't read the job, you can't type it very fast.

•

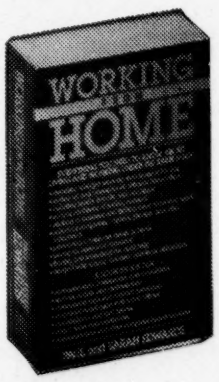
Pay attention to small details. Whenever you can improve on a customer's work by correcting spelling, rearranging awkward sentences, fixing punctuation, etc., do it. If you catch an error in addition, or any mathematical equation, check with the customer and then put in the correct number(s).

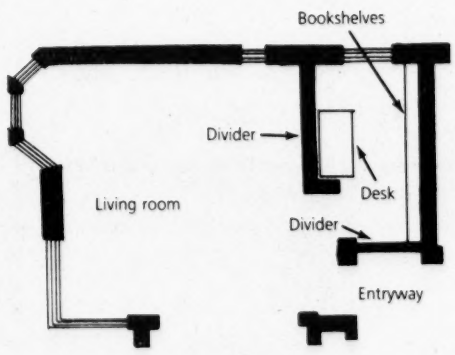
This thoroughness and personalized touch will make you a valuable asset to your customers. This is one of the reasons they will be willing to pay you well. Being conscientious and careful isn't quite enough, though. You also have to tell them about it. Point out where you put forth extra effort, where you fixed errors, where you improved. They need to know it.

Working From Home

Best of the books we've seen on this subject. The table of contents lists almost everything that you need to think about if you are going to work from home.
—Art Kleiner

Working From Home
Paul and Sarah Edwards
1985; 420 pp.
$11.95
($13.20 postpaid) from:
St. Martin's Press
Cash Sales
175 Fifth Avenue
New York, NY 10010
or Whole Earth Access





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Tips for Keeping Your Home and Work Separate:
1. Clearly define your workspace.
2. Set definite work hours.
3. Have a way to signal that you're working; for example, keeping the office door closed or putting up a Do Not Disturb sign.
4. Learn how to firmly, but nicely, say, "No, I'm working now."
5. Use a separate business telephone line and an answering machine or answering service.
6. Soundproof your office.
7. Dress in a certain way when you're working.
8. Keep work materials, paper, and equipment in your office space.
9. Have a door or other barrier to your office. Close it while you're working and after you've finished working.

•

When you're working in a traditional office, the assumption is that while you're there, work has priority. This assumption generally defines how, when, and in what way people interact with you. When you're working at home, however, there is no single assumption about what you're there for. After all, it's a place where you play many roles: worker, neighbor, friend, mate, parent, citizen.

Under these circumstances, it isn't always easy for others to know how to interact with you. Therefore you need to set limits and define boundaries so they will know when you're working and when you're not. It's up to you to let them know what you expect and to help them feel comfortable with an unfamiliar situation.

•

You don't need to create a new file every time you send out a letter. You can use a three-ring standard notebook to file copies of miscellaneous correspondence. File the letters by date, with the most recent in the front of the notebook. If certain correspondence develops into a project or leads to a client, you can easily remove it from the Chronological File at the time you create a Project or Client File on the matter.

International Home Exchanges

Swap houses for a real adventure. With the assistance of these services you exchange homes with someone living in (and somewhat tired of) your vacation destination. Your home then becomes their vacation place. This possibly unpredictable deal is made as fail-safe as possible by several directories chock-full of homes around the world with photos, specifications, and a little data about the owners. Two of the services (Home Exchange International and Global Home Exchange Service) do not publish directories — instead for a fee they pick a place to your specs, then arrange and guarantee the swap.

Either way, you not only get a place to stay but also instant, knowledgeable neighbors. To swap successfully I recommend early planning. —*Kevin Kelly*

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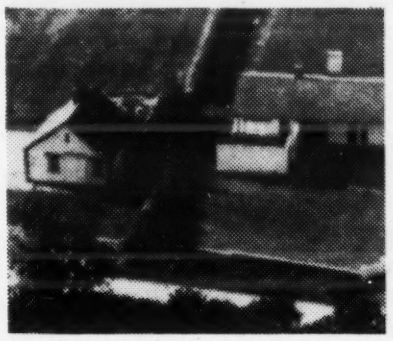
No hotel tab at the end of your vacation is just one of the benefits of exchanging. You can cut down on restaurant costs by cooking your own meals, and you can frequently include a car in your exchange. "Exchangers" give each other helpful hints that only a native can give about where to go or not to go; where to shop and where to play. Friends and neighbors can sometimes be called upon as hosts. The worries about your vacant home being robbed, your plants or even your pets being properly cared for are greatly reduced.
—Intervac

•

Morocco: Meknes. House with small swim pool, patio, in residential section 2 mins from market & city center, convenient to *medina* & old city of Fes, riding, tennis, bridge, all avail. Exchange only. 2 bdms 2 bths, sleeps 5. Aircon, cen htg, wshr, fridge, car. Maid avail. 2 adult 2 child. Prefer 5 weeks between 3-07 & 5-09 in New York or San Francisco. French, English.
—Interservice Home Exchange



Ireland.

Germany.

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Ireland: IRL027 R Dublin: Hilary Kelly, 2ad/f4,m12,10. Drogheda, Co.Louth. —Intervac

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Germany: M, 7821 Grafenhausen, Gregor Nunier, Berlinerstr 36, 7809 Denzlingen (07666-5910) ret. government official.

Italy: S, Florence, Romano Manneschi, 15 Via Bocci, 65 Firenze 50141, Italy. —Intervac

Global Home Exchange Service: information **free** from P. O. Box 2015, South Burlington, VT 05401-2015.
Travel Companion Exchange: information **free** from P. O. Box 833, Amityville, NY 11701.
Vacation Exchange Club: Two-volume directory **$16**, information **free** from 12006 111th Avenue, Unit 12, Youngtown, AZ 85363.
Intervac: $45/year with your home listed, **$60** without (3 issues), from International Home Exchange Service/Intervac U.S., P. O. Box 3975, San Francisco, CA 94119.
Home Exchange International: information **free** from 185 Park Row, Suite 14D, New York, NY 10038.
Interservice Home Exchange: $24/year with home listing; **$18**/year without. Information **free** from P. O. Box 87, Glen Echo, MD 20812.

Supermarket Backpacker

Choose recipes from this book.

Stock up on ingredients (by brand name) from local supermarket.

Remix.

Repackage into plastic bags.

Eat well for cheap. —*J. Baldwin*

Supermarket Backpacker
Harriett Barker
1977; 194 pp.
$8.95
($10.95 postpaid) from:
Contemporary Books
180 N. Michigan Avenue
Chicago, IL 60601
or Whole Earth Access

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Lipton's Mushroom Cup-O-Soup — To two cups boiling water add two pkgs. soup, ¾ cup instant rice, ½ tsp. rosemary, ½ small jar of chipped beef, ½ cup dried frozen peas. Simmer 7-10 minutes. Serves 2.

•

Use heavyweight plastic bags (Ziploc) to hold premeasured dry ingredients such as pancake mixes. Add liquid at camp and mix by hand right in the bag instead of dirtying a pot. Expel as much air as possible before sealing. Don't forget any directions you might need.

If you force or squeeze the air out of plastic bottles and bags before sealing, you create a vacuum. They will be less likely to break, and will require less room to pack.

•

Top Ramen Stew — Serves 3-4. To four cups boiling water, add one cup dried mixed vegetables (peas, carrots, chard, celery slices, etc.), one tbls. dry onion flakes, 1/4 cup broken dried mushroom pieces, 1/4 cup chopped dry salami. Cover and remove from heat for 10 minutes to rehydrate dry vegetables. Return to a boil. Add Ramen noodles. Cook 3-5 minutes. Add soup packet and simmer 2-3 minutes more.

Breakfasts You Can Drink

Use a container with a tight lid for mixing the following individual proportions. Whole fresh eggs may be substituted for dry egg powder.

ORANGE BREAKFAST

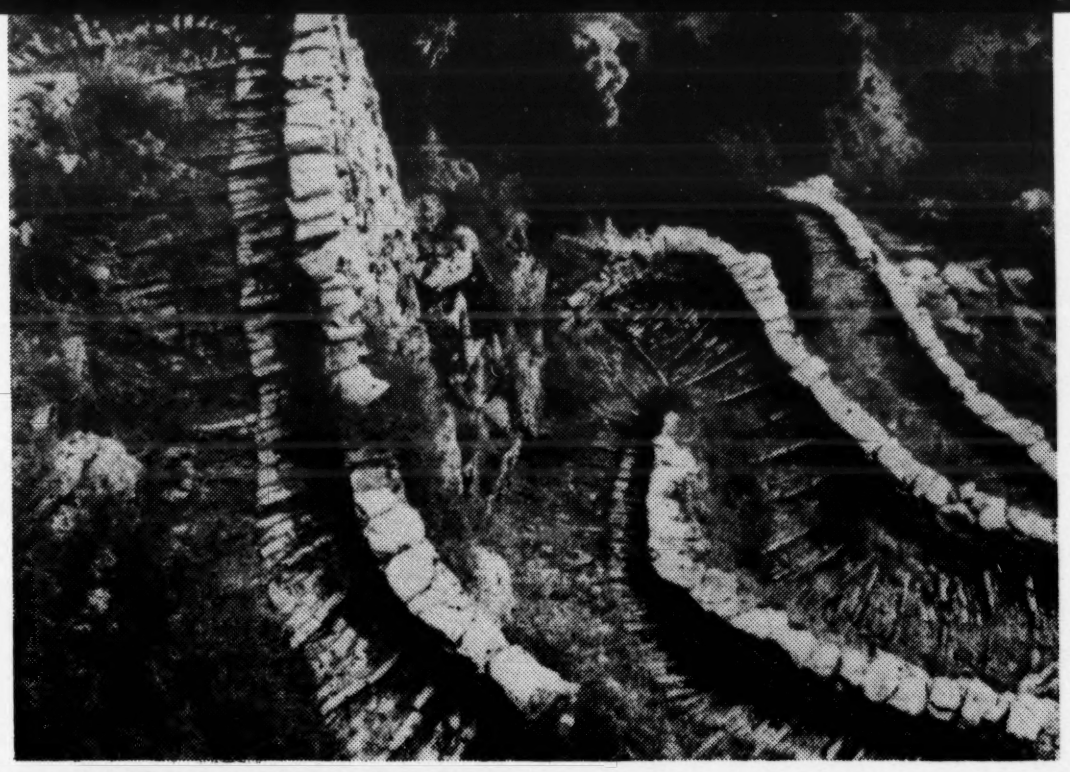
At camp, add 1 cup water to:

1/3 cup dry milk
1-2 tbls. orange crystals (Start, Tang)
1 tbls. brown sugar
1 heaping tbls. dry egg powder

GRAPEFRUIT BREAKFAST

At camp, add 1 cup water to:

1 heaping tbls. dry egg powder
1-2 tbls. grapefruit crystals (Tang)
1 tbls. honey



Amazing cliff-scaling path to Vradheto, Zegoria.

Greece on Foot
(Mountain Treks, Island Trails)
Marc S. Dubin
1986; 240 pp.
$9.95 postpaid from:
The Mountaineers Books
306 2nd Avenue West
Seattle, WA 98119
or Whole Earth Access

Greece on Foot

No better way to see a country, particularly a tourist-crammed one like Greece, than on two feet headed away from all those boutiques. Greece offers the pedestrian a civilization, especially on the islands, that is anciently keyed to foot travel.

As I can attest from my own treks in Greece, scads of rewarding two-day to two-week hikes are feasible with the knowledge gathered in this scrupulously researched book. Trustworthy directions, explicit details of expected problems, accurate suggestions of where to get supplies or what monasteries you can sleep in — the book is chock-full of this kind of admirable firsthand information. Its thoroughness is startling. And comforting, too, when you set out beyond the bus station.

So much detail is given about each individual path, most of them meandering through villages, that this book conveys in passing a better sense of contemporary culture in Greece than any of the more ambitious guidebooks around.
—Kevin Kelly

•

If you live like a shepherd, camping out much of the time, cooking for yourself and shunning all forms of mobility other than your feet and thumb, a $6 daily allowance is still adequate. But if you eat out a lot, even in modest establishments, take a room with a hot shower down the hall and flag the buses and trains regularly, reckon $12 a day for room and board plus $3 more for transport. Frequent ferry boating and domestic plane rides at $5 to $25 a shot put you in another league entirely. Knock off 25 percent if traveling with a companion. . . .

In summary, a reasonable monthly estimate for a solo tramper is $450, $350 each for a couple.

•

Trails still regularly used by festival pilgrims or other hikers are frequently marked with red, or more rarely blue or yellow, blazes; the convention of piling rocks to form a cairn is also honored.

•

Old cobbled trails (*kalderimia*) are usually a safe bet to lead somewhere, though sometimes no further than the nearest hilltop shrine. If you need to know the dedication of a particular rural church (*ksoklisi*), as when matching it to a name on a map, the patron's ikon is usually on a raised platform to the left of the front door, inside. . . .

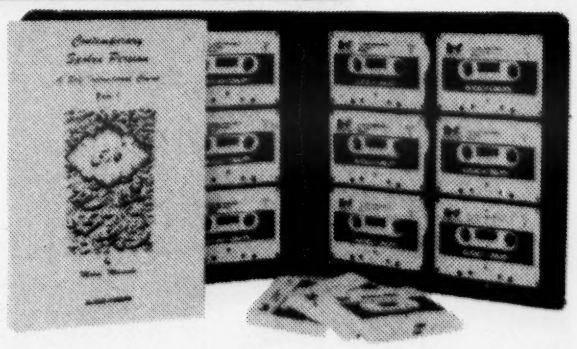
Goat or sheep traces, studded with their droppings and often crisscrossing a hillside in a fishnet pattern, are usually bad news — there's no guarantee that bipeds have ever been that way. Manure from donkeys or mules is a good sign — these animals rarely march anywhere unaccompanied by humans. A trail with weedy or overgrown sections has not necessarily been abandoned. Conversely, beware of the trail that looks too good to be true — it may merely lead to a chapel, spring or private dwelling and stop there. In today's Greek mountains the correct path is often the one that's visible from afar but seems to vanish under close inspection; that has recent, but not too fresh, candy and cigarette wrappers ground into its surface (you may, for the first time ever, be relieved to see rubbish in the wilderness); and that trundles on meadow after meadow, always seeming to be on the point of expiring in a network of aimless livestock traces but somehow miraculously continuing in the right direction.

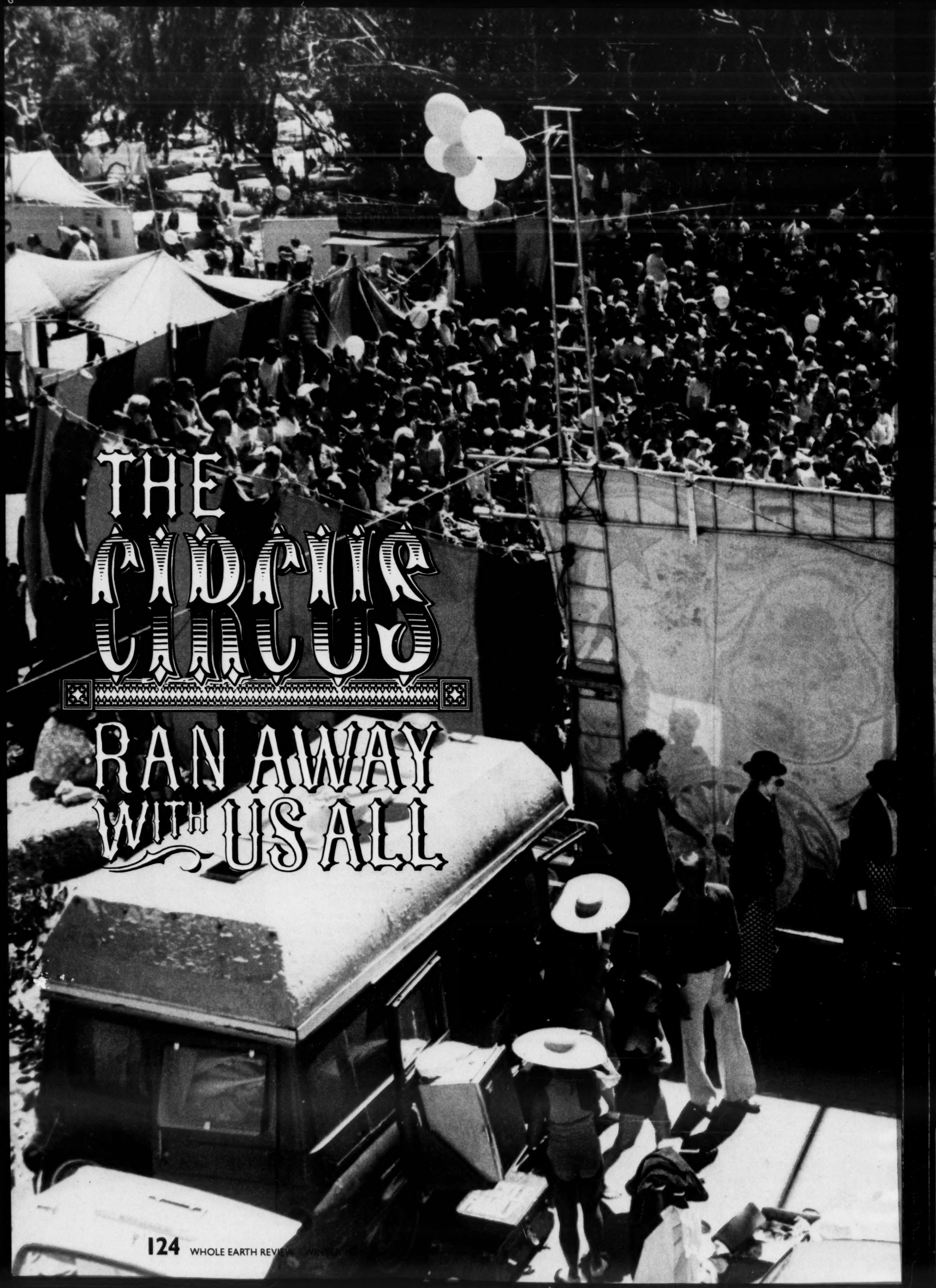
Goatherd and flock.

Audio-Forum

Don't expect to learn a language by listening to tapes. The best you can expect from cassettes is tireless practice, at your convenience, of what you learn from a class or tutor. Audio-Forum has the best selection of courses, including a well respected crash course called "Language/30." Some of the full-length courses were originally developed by the U.S. Foreign Service Institute. All come with a text book (essential) in a cacophonous selection of languages: Zulu, Xhosa, Serbo-Croatian, eight dialects of Arabic, Urdu, Khmer, and, of course, good ol' Spanish and French.
—Kevin Kelly

Audio-Forum
Catalog **free** from:
Audio-Forum
96 Broad Street/Suite A-30
Guilford, CT 06437





THE MIDDLE CIRCUS RAN AWAY WITH US ALL

WHAT'S SO SPECIAL about the Pickle Family Circus? They don't have special effects, death-defying feats, or sad and bewildered animals.

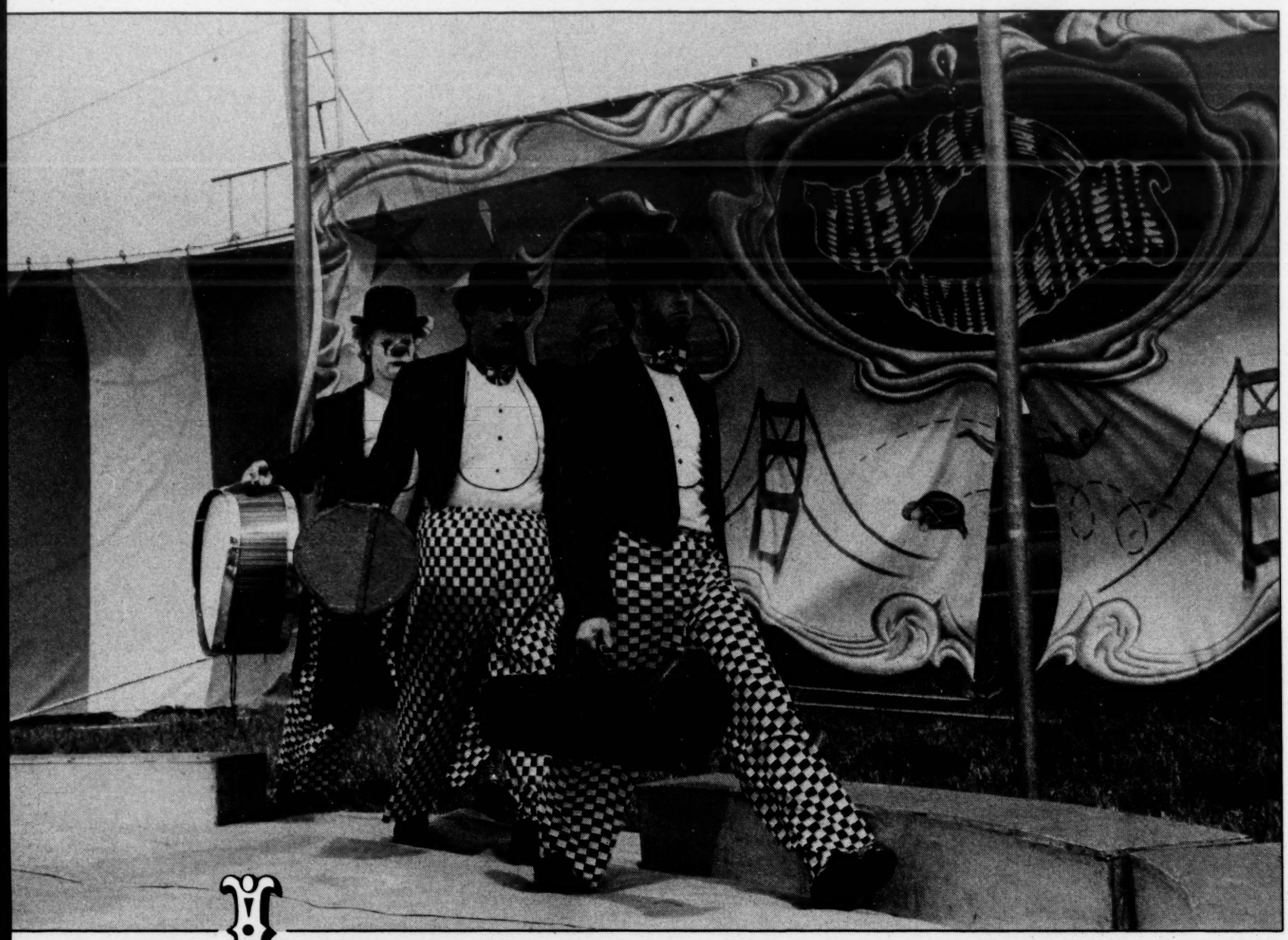
What have they got? They've got lots of talent. They've got style and pizazz. They've got northern California begging for more.

Pickle Family is run in the same fashion as Whole Earth. Everyone is paid the same, everyone juggles a lot of different jobs, and kids and pets and other family members are all incorporated into the organization. Pickle Family is a non-profit circus. They travel from town to town mostly throughout northern California, staking their tents and getting involved in community fundraising activities.

Most events occur outside. You sit in the fresh air among your neighbors and watch something special.

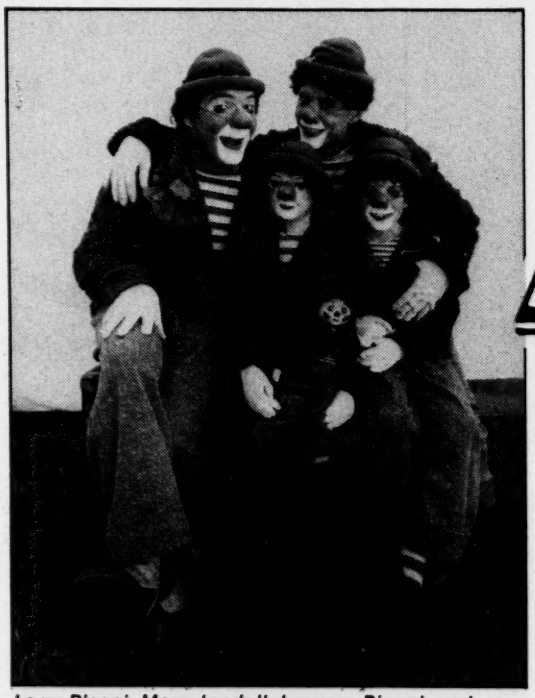
What follows are excerpts from the book, appropriately titled THE PICKLE FAMILY CIRCUS, by Terry Lorant and Jon Carroll ($12.95, Chronicle Books, 1986). A neat book that combines great photographs with quotes from various members of the circus.

—Susan Erkel Ryan



Three Musicians: Irwin, Pisoni and Hoyle

IN THE PICKLE FAMILY CIRCUS, a clown runs the show. That should tell you something right there.



Larry Pisoni, Marc Jondall, Lorenzo Pisoni, and two fakes

ALMOST FROM ITS INCEPTION, the structure of the Circus announced a victory for the common man. The fool had become king, which meant that every fool had royal blood. Even you; even me.

And, not coincidentally, it meant that the Pickle Family Circus attracted and nurtured and cherished three transcendent clowns: Larry Pisoni, Bill Irwin and Geoff Hoyle. The on-stage contrasts between the three were complex and appealing; often they could get a laugh just by standing next to one another. Irwin was air; Hoyle was fire; Pisoni was earth.

"I REMEMBER the year we did the *elegante* act, and I sort of wafted into the ring as this white-faced fantasy dancer, and a little girl reached out and caught my hand and looked up at me and said, 'I'm a fairy princess too!'" —*Wendy Parkman*

Wendy Parkman ►

Rebecca Perez

"SOMETIMES it gets real lonely on the trapeze all by yourself. Sometimes I talk to myself, especially when I'm tired and need extra concentration. I was terrified of heights before I did this. The first time we set the trap at full height I got to one trick where I had to roll forward, and I just couldn't do it. So I came down and rested a bit and played the music for the act. Music really helps. And smiling. Smiling *makes* you relax. Even with all that, though, I got stuck again, and people on the ground had to talk me through it."

—Rebecca Perez

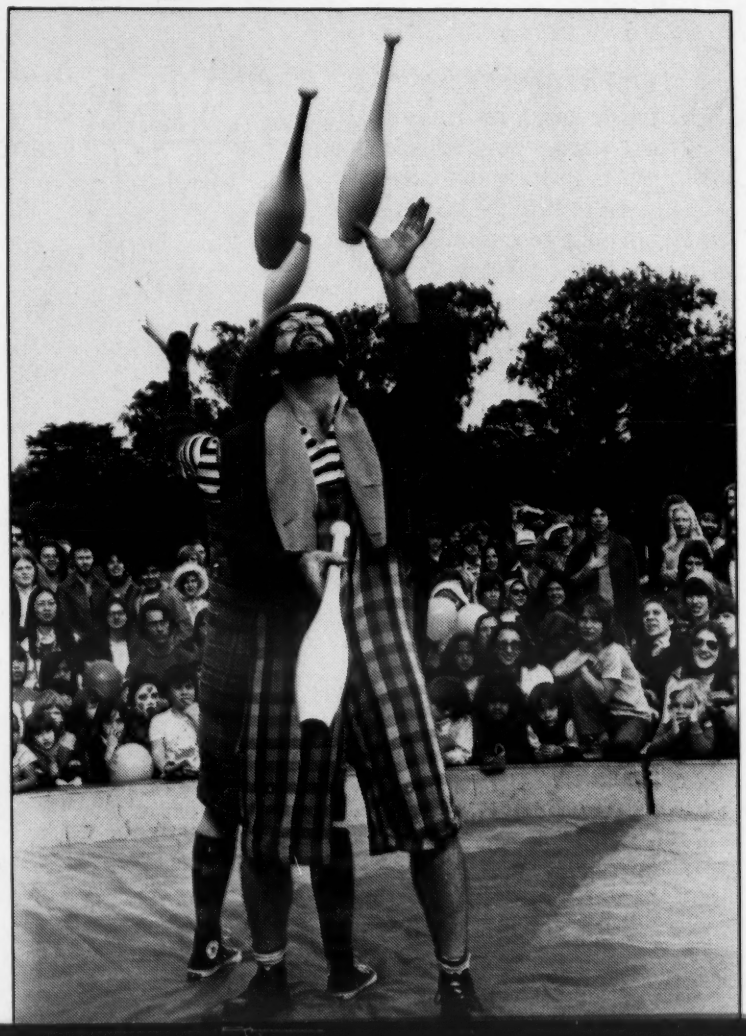
"IF THERE's any perfection on earth, it's up in the air."

—Sando Counts

JUGGLING HAS BEEN an integral part of the Pickle Family since before the beginning. There's never been a show without a juggling act. The clown acts and the acrobatics and (when there was one) the trapeze act might have been the flash and fire of the Circus (when they worked, they certainly were), but the juggle was the through-line, the baseline, the *sine qua non*.

This is not a coincidence.

INSINUATIN' RHYTHM. Here: Catch. It's a discipline crammed with lessons; a non-verbal teaching tool; a skill with an ever-receding benchmark of perfection. Also, it's fun to watch. Also, it's even more fun to do.



Peggy and Lorenzo Pickle ►

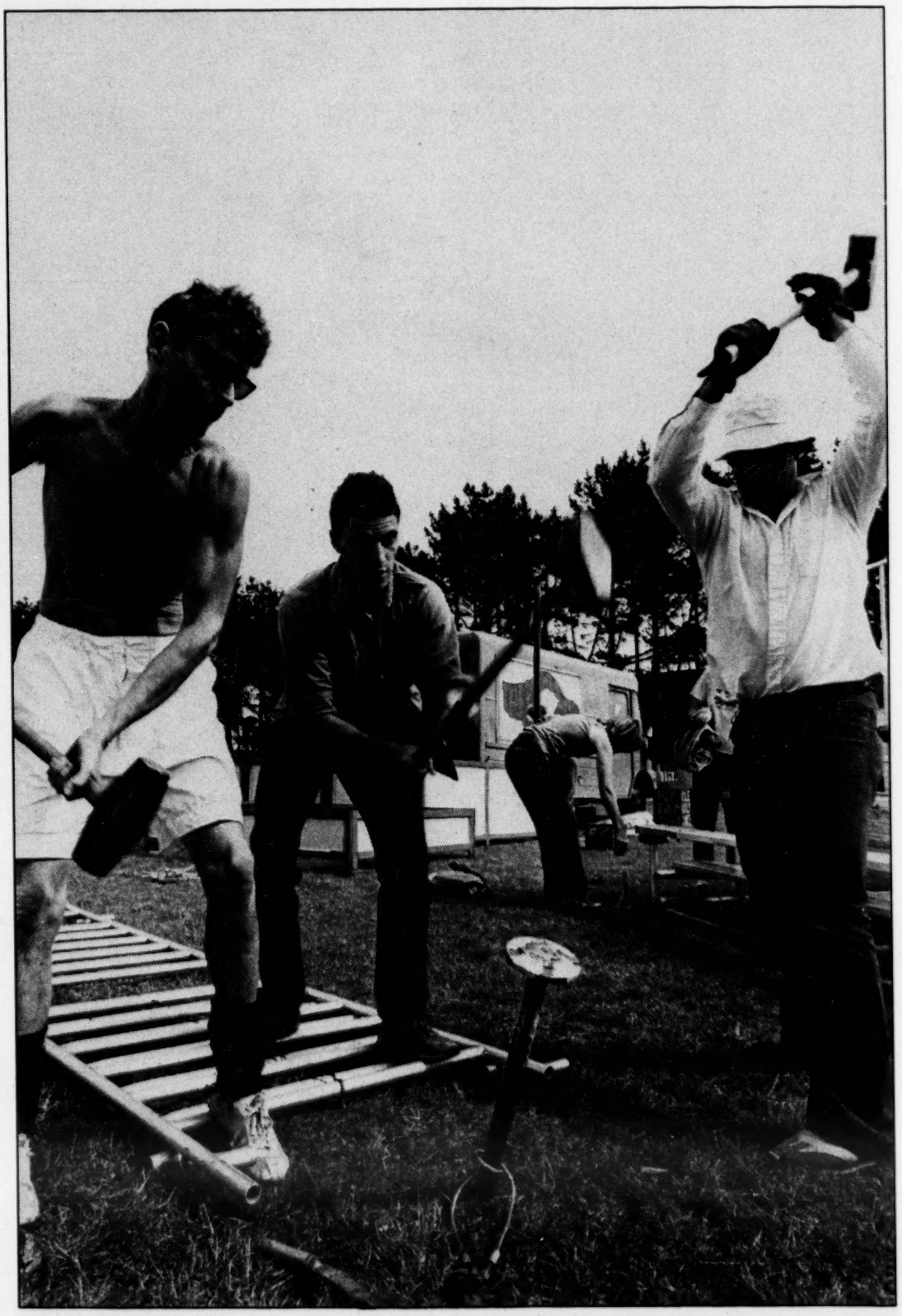
A TYPICAL PICKLE Family Circus production happens on a warm Saturday afternoon in a grassy park on the outskirts of a small northern California coastal town. The crowd is small by urban standards but large by local standards — perhaps 1,000 people. The air is hot and damp and a little smoky; the aromas of barbecued chicken and freshly popped corn mingle with the sharp tang of the soft salt breeze.

The path to the Circus arena is flanked by a midway organized and staffed by the civic-minded in the community.

SOME ATTRACTIONS (like Disneyland, or the cathedral at Chartres) can stay in one place, but a circus has to move to find its audience. This has been true for so long that the idea of circus has been inextricably intertwined with the idea of travel. A circus is rooted in rootlessness; it's part of the romance, part of the mystery.

"YOU'VE GOT TO keep your sense of humor on the road. If you can't see the funny side of things, one night you'll just take off all your clothes and run screaming into the night. Of course, that happened once too. And it was pretty funny."

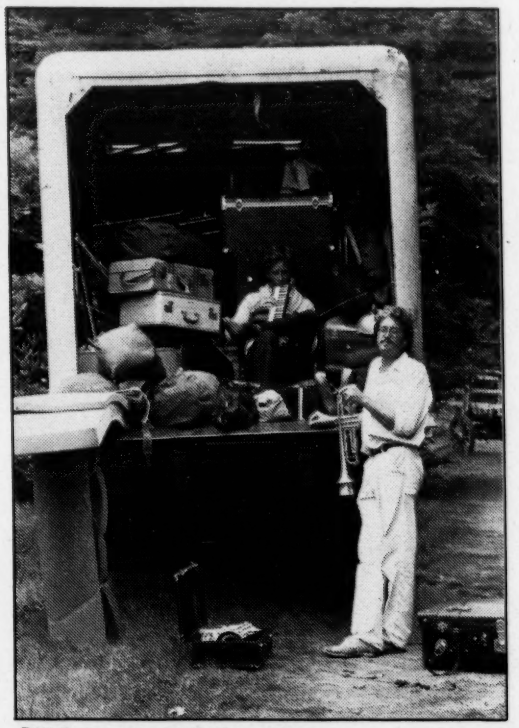
—Nick Saume



Marc Jondall, Carlos Uribe and Larry Pisoni drive stakes in Bend, Oregon

Harry Robb, Lorenzo Pisoni

"FOR ME, the Circus is a very unusual place where I can play jazz music. It's been this miracle that I fell into." —*Harvey Robb*



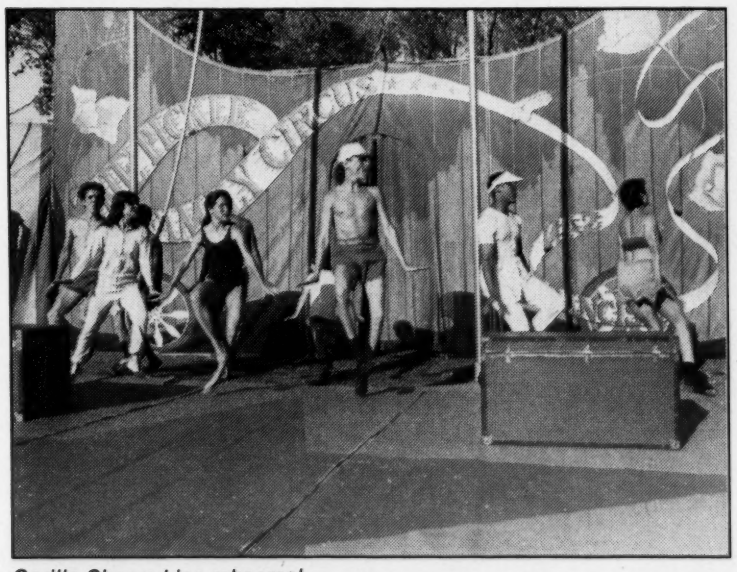
Bill Belasco and Michael Moore

"PRESENTING, from high atop almost anywhere, for your listening and clapping pleasure, the unique Pickle Family Circus Band, pre-eminent in the field they invented. There isn't another band in the world that plays for a circus most of the year; there isn't another circus in the world that travels with a real jazz band, or that wants to.

"THE PFC INVOLVEMENT with Music is continuous and serious. The PFC involvement with Dance is sporadic and primarily concerns tap dancing gorillas. The Original, Genuine Tap Dancing Gorilla, later Choreographer to the Gorilla Chorus Line, steps to the microphone to tell us all about it:

"Being in the Circus was really my first brush with doing popular entertainment. I'd been a modern dancer all my life, and suddenly I had to get into a gorilla suit; it was the hardest thing I'd ever had to do. Everything in my training had taught me to be pure and abstract, the essence of emotive modern dance. The big no-no's were anything literal, narrative and theatrical. And yet there I was with Willy doing this skit as a gorilla that wants to tap dance."

—*Kimi Okada*



Gorilla Chorus Line rehearsal

Top row: Michael Ohra, Rebecca Perez, Robin Hood.
Second row: Judy Finelli, Zoe Leader.
Third row: Dericque McGee, Larry Pisoni, Jay Laverdure.

Wendy Parkman with Shannon and Kelly Weller

Lorenzo Pisoni and Willy the Clown

"WHEN I FIRST met Peggy and Gypsy at the Mime Troupe, one of the things I just loved was that here was this baby growing up where her mother was working, and I was part of that — I met Gypsy when she was six months old. She was in the thick of everything and many adults cared for her—nobody thought twice about picking her up or changing her diapers or feeding her when she was hungry. And I looked at that situation and I thought, 'What a lucky kid!'"

—Larry Pisoni

"THE WHOLE THING, particularly when we're out on the road, is very homey. If Bad Bob snores in his tent at night, everybody knows it. If somebody has a fight, everybody feels it. If somebody is worried about their parents or their bank account or their performance in the show, everybody has an opinion. Given how we live our lives, how could it be otherwise?"

—Peggy Snider

THE PICKLES ARE a marvelously chaotic organization. In some ways (the image is irresistible) the whole enterprise reminds me of a fat clown. Lots of running around and yelling and falling down; lots of strange objects of uncertain function hanging from comical appendages. Sometimes you wonder how the whole unwieldy organism will ever make it across the stage.

And yet, underneath, it's all sinew and bone and skill. The skeleton is lean and functional; the brain is constantly working. It couldn't do what it does if it didn't know what it was doing. There's some competence involved in running a tight, well-controlled, hierarchical organization; but the real skill comes in creating a loose, loud-mouth, democratic organization that works without all the solaces of rigid structure.

Consider the skill of the performers. The Pickle Family clowns are almost certainly the best American clowns of their generation; the club passing routines are as good as you'll find anywhere; the acrobatics and trapeze routines are polished and careful and lovely.

And it ain't on television, or in some cavernous convention center. It's right there, the best there is, performing for you and your friends, supporting your local day care center or senior citizens' facility or charitable enterprise.

Bottom to top: Lorenzo and Lorenzo

It's a gift, is what it is. It reintroduces the notion of human scale to performance; it reaffirms the link between social involvement and show business.

Six months ago, a bunch of Pickles were kicking around possible titles for their book. One suggestion, borrowed from a phrase that had become a sort of Pickle aphorism, in itself a reworking of a familiar American idea, was: "The Circus Ran Away With Us All."

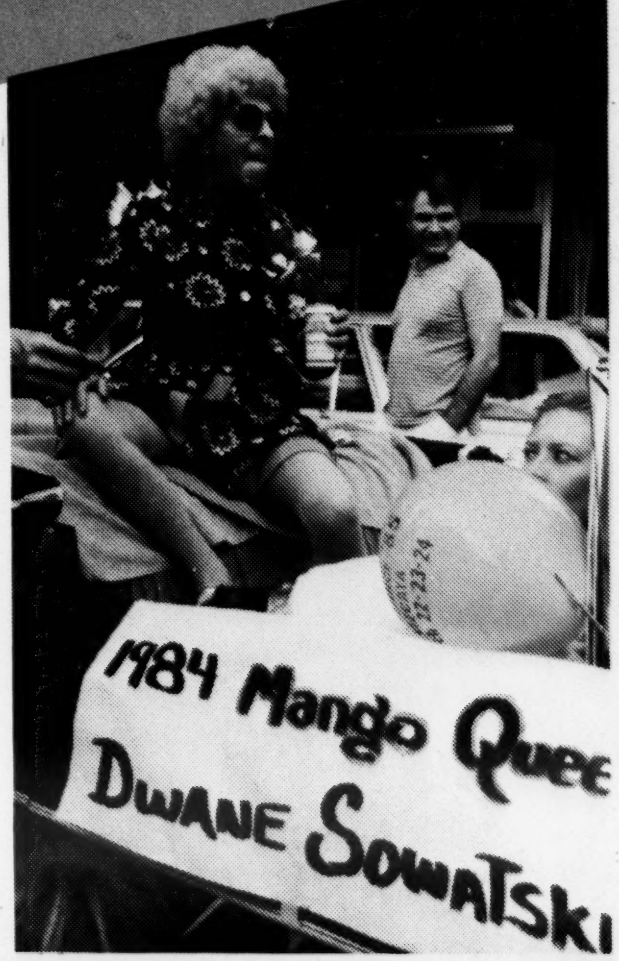
I didn't understand it then. Now I do.

—Jon Carroll
September, 1985

◄ The first Strut (1981) was led by a banner, a great dane, and the conch-shell-tooting Mango Marching Band.

► Clowns get angry if you don't let them march. Members of a local clown club join us every year. Last year they performed a clown wedding every 100 feet.

WHY DON'T WE DO



Parades attract royalty. Dwane Sowatski has been the Strut's Mango Queen for five years running.

ALTERNATIVE PARADES

by Glenn Terry

photos by Vandy

THE ORANGE BOWL PARADE is a major South Florida event. It is produced every New Year's Day for a national television audience. Glitzy floats roll by, sponsored by big business and Chambers of Commerce. Music is supplied by marching bands from all parts of the country.

Miami's big event lacks just one thing — Miamians, local people performing. And isn't that what a parade is supposed to be? Some of us thought so when we put together an alternative parade, the King Mango Strut, in 1981. On the last Sunday of the year, the Strut marches through a Miami neighborhood called Coconut Grove. Like Tampa's Mama Guava Stumble or Pasadena's Doo Dah Parade, the Strut has become a cherished, off-beat tradition.

Parades offer enormous opportunities for public frolic. There is something magical about taking over a street, if only for an hour. A parade can be organized by almost anyone. After organizing our own Strut and helping others in different towns to start up alternative parades to celebrate nothing in particular, we've come up with a few tips.

IT IN THE ROAD?

► Members of N.O.W. have joined us every year as F.L.A.W. (Florida Ladies Against Women). Most wear housecoats and carry signs saying things like, "I'd rather be ironing" and "Stand By Your Man." Other political groups participating in the Strut include the Peace Coalition ("Kill For Peace") and an anti-development group ("Up With Condos").

TIPS

1. Choose a location in a neighborhood that people enjoy visiting — maybe a park or business area that caters to pedestrian traffic.

2. Visit the parade experts — your local police. They issue parade permits and suggest good routes to march. They will also give you a price, the cost of renting off-duty policemen to direct traffic. This "police protection" is usually required. Cops enjoy parades. Get them on your side.

3. Call City Hall. Local government approval is often necessary to close a street. You may even have to appear before a city council, as I did, to explain how your parade will be good for the community. While you are there, ask the city to donate money or the required police.

4. Approach the Chamber of Commerce. With their approval, steps 2 and 3 will be easier. They may also give you money. Resist offers of money and sponsorships if it means giving up control of your parade. Parades run by businesses become businesses themselves.

5. Keep it simple. The Mango Strut is six blocks long and remembered for years. Participants are the first 40 groups to submit applications which are "really funny." Often Strut organizers (who are fairly funny themselves) will assist groups in developing humorous themes and costumes.

6. Keep it open. Charge participants low fees (as the Doo Dah does) or no fees (as the Strut does) so anyone can join. We have had themes (e.g. "Let's Put the Nut Back in Coconut Grove") but have never asked anyone to follow them. They are mainly for the benefit of television reporters.

7. Keep it cheap. Simplicity keeps expenses down. The shorter the route, for instance, the fewer police you'll have to rent. The Strut is financed by selling T-shirts and beer.

8. Keep it pedestrian. Parades are more fun when participants walk rather than roll. Cars and crowds are a bad mix. Participants and the audience can relate more easily when everyone's on foot. The Doo Dah is strictly people-powered. The Strut makes exceptions for its various queens and semi-famous people.

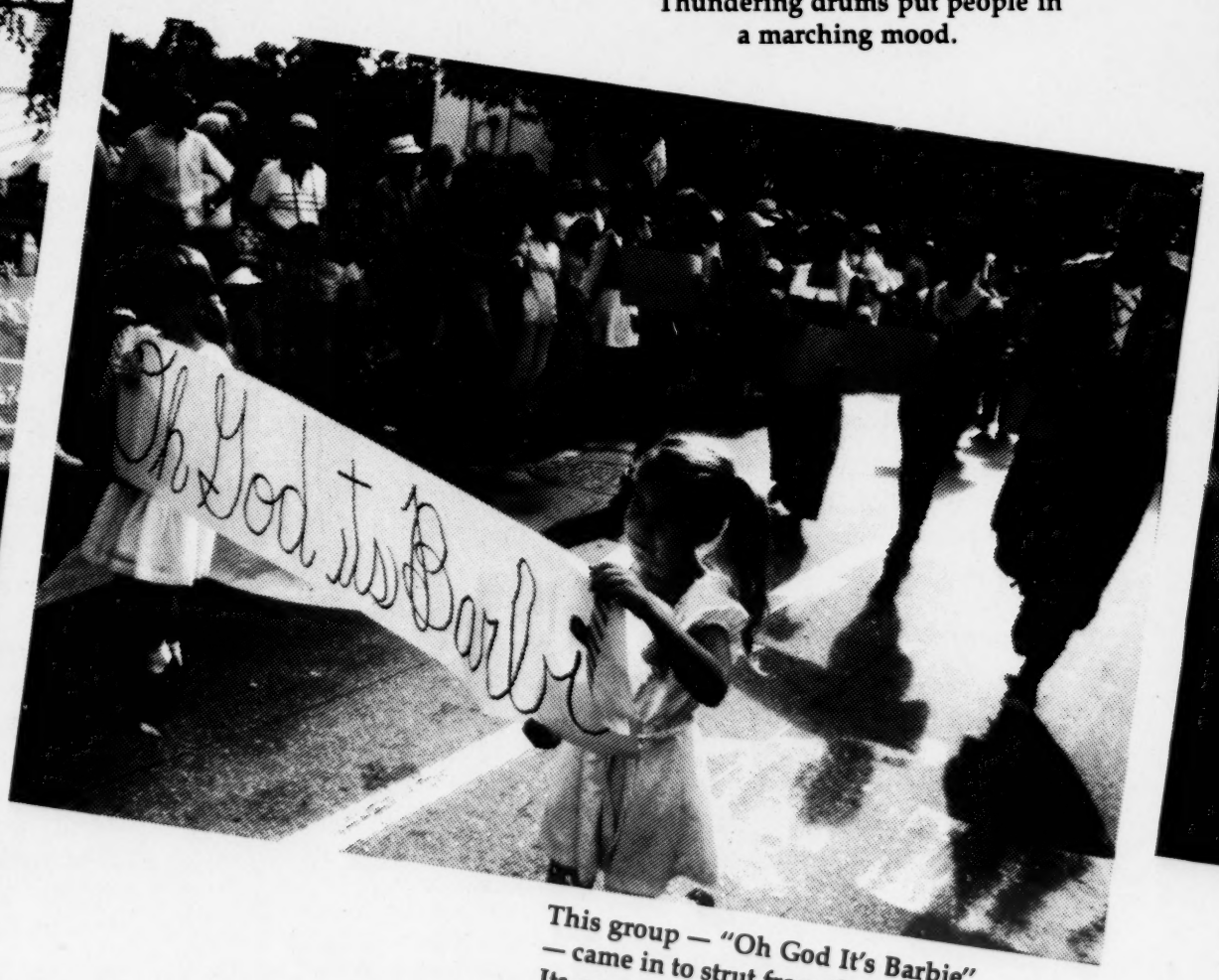
9. Relax. Enjoy the process. Share the chores (planning, applications, publicity, staging) with others. Organizing a parade can be more fun than the parade itself. ►

WHY DON'T WE DO IT IN

Parades need music. This strut featured the MX Missile Dense Pack Band. While brass/woodwind marching units are O.K., also consider classical, country, or blues bands.

Liberty City's Boy Scout drum corps was the loudest group in the '85 parade. Thundering drums put people in a marching mood.

Lynn Klein stormed into my office proclaiming, "I am the world's greatest Jewish-American Princess and I want to prove it in your parade." She has done just that for the last four years, and has also appeared in California's Doo Dah Parade.

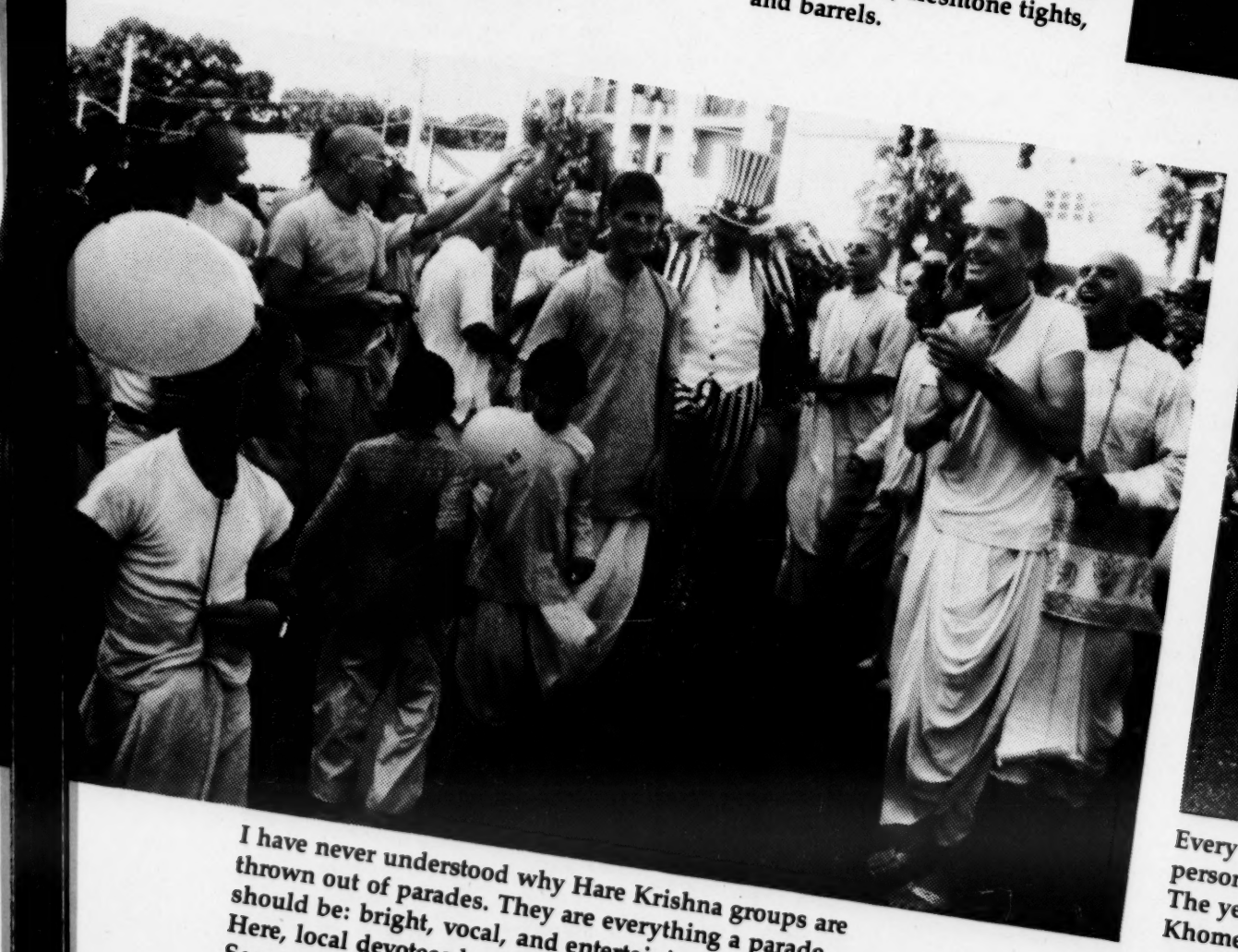


This group — "Oh God It's Barbie" — came in to strut from the suburbs. Its creators showed us what the Barbies and Kens of America are really like. Most were hookers or Rambo clones.

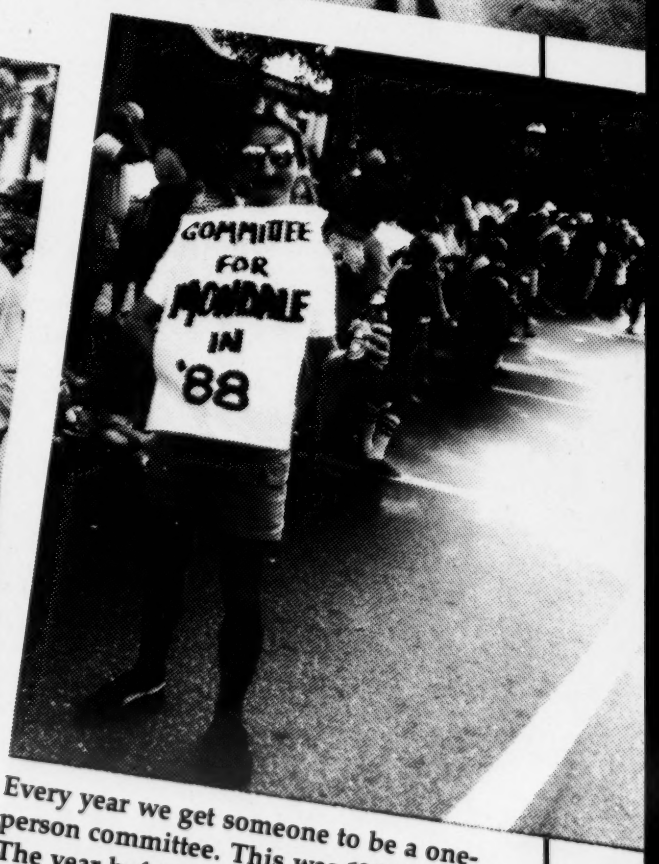
THE ROAD ?

"The Marching Freds" have joined us for the last three years, claiming that people named Fred get no respect. Their '86 contingent included 112 men named Fred, several Fredericas, and a dog ("Fred") wearing a sign: "Man's Best Fred."

Most movement groups jump at a chance to parade in public. Miami's pro-nudist organization has Strutted thus far in towels, fleshtone tights, and barrels.



I have never understood why Hare Krishna groups are thrown out of parades. They are everything a parade should be: bright, vocal, and entertaining. Here, local devotees have gotten Uncle Sam to join them in the '84 Strut.



Every year we get someone to be a one-person committee. This was 1984's. The year before it was an Ayatollah Khomeini Fan Club. ■

BACKSCATTER: echoes from readers back to *Whole Earth Review* (27 Gate Five Road, Sausalito, California 94965)

THE INTERNATIONAL FLAT EARTH RESEARCH SOCIETY OF AMERICA
SUCCESSORS OF UNIVERSAL ZETETIC SOCIETY OF AMERICA AND GREAT BRITAIN
of Covenant Peoples Church GEN. 9:16

AIM: TO CAREFULLY OBSERVE, THINK FREELY REDISCOVER FORGOTTEN FACTS AND OPPOSE THEORETICAL DOGMATIC ASSUMPTIONS. TO HELP ESTABLISH THE UNITED STATES...OF THE WORLD ON THIS FLAT EARTH. REPLACE THE SCIENCE RELIGION ...WITH SANITY.

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WHERE WAST THOU WHEN I LAID THE FOUNDATIONS OF THE EARTH? DECLARE IT IF THOU HAST UNDERSTANDING... JOB 38:4

Whole Earth Review
27 Gate Five Road
Sausalito, CA 332-1716

Aug. 25, 1986
PS If you do not change what I have told you DO NOT PRINT ANY MORE REGARDING US! like your column etc. YOU ARE GOING TO BE IN A LOT OF TROUBLE!
C.K.J.

David Burnor,

Just recieved the tear sheet with the listing of your so called "review" of our REASEARCH Society! Thanks

I hesitated and in fact at first did not send in anything to be reviewed, felt evil was intended toward us, since you use your grease ball as s sign. But your mag kept up asking for stuff..at last assured me was not for our harm!

No doubt who so ever is responsible for putting the "review" right behind page 75...is in for trouble...Cursed by GOD!

NOTHING IS RIGHT IN THE REVIEW! FIRST our NAME: before was The International Flat Earth Research Society, we are a Legal Corp in state of California. Some years back and on all Lit I sent you, our present name FLAT EARTH RESEARCH SOCIETY INTERNATIONALof Covenant Peoples Church. It is NOT just "Flat Earth Society, got it? RESEARCH..is how we learned it was Flat! ALSO YOU LEFT OUT THE ACCESS METHOD TO OUR PAPER, in FACT YOU DID NOT MENTION WE PUBLISHED A PAPER FLAT EARTH NEWS!

So you did an on purpose HATCHET JOB...beinfit your self, take advantafe of us! Take all....give ~~xthing~~.nothing , very evil!

Plus, you say we claim people will fall off the world! JUST THE REVESE OF WHAT I SAID! Only on the Grease ball world ould you fall off! We say world is infinite in size.

What I want you to do: 1. correct our NAME! 2. State we publish FLAT EARTH NEWS $10. yr.
3. We DO NOT SAY FALL OFF FLAT WORLD, WE SAY YOU WOULD ALL OFF THE GREASE BALL WORLD!

CharlesK. Johnson Charles K. Johnson

TO CARRY RESEARCH INTO GEOPHYSICAL MATTERS IS THE BENEFICIAL EXERCISE DESIGNED BY GOD FOR MANKIND. . . . Eccles 1:13

We are a non-profit making Society relying upon donations freely given.

Truth missionaries

Please excuse me for responding too hastily to your article about us in Fall '86 *WER*, in that I didn't adequately reply. There were some inaccuracies in the article, which we would very much appreciate you correcting. Briefly, they are:

All of our materials are free, but *only* at meetings, when mailed we request postage, and sometimes a little more for our expenses. They are free not because they are hard to give away, but because they serve God, Whose service shouldn't be distracted by money.

Tachyon-type physicalness, because tachyons always move faster than light, may be so fast that effect comes before or without cause. Hence, tachyon-type Deity need no cause, and Their physicalness is without cause. But, at tachyon-plus speed They would be ephemeral, burning out too fast. So, to become eternal, They annihilated Themselves by slowing to the speed of light, but then (transtemporally) signalled Their own idea possibilities in this Nature (the tachyon-types being SuperNatural) to effectuate Their current eternal physical bodies as this Nature's first physio-facts. (Told in more detail in our tract "Forever Physical.") They accomplished the slow-down in a sexual love embrace, starting this Nature's physicalness while holding each other in it.

Not necessarily "counting the chromosomes in Jehovah's sperm" but carefully regarding the scientific fact that all females, including Mary, have ONLY X chromosomes, and the Y chromosome for Jesus' sex designation had to come from a male, and the Father (Yahweh) could not morally cause issuance of His own sperm (masturbate, etc.). Only the real Goddess could morally cause the ejaculation of His sperm. Also, the Greek word translated "begotten" in "only begotten son of God" is better translated "genetic" (it is pronounced almost the same as "gene"), referring to the genes in Yahweh's sperm.

You say we have "Triple-X theology". Maybe so, but we consider it the theological DAWN of NEW AGE RELIGION. You forgot to mention our Biblical proofs of Jesus' own sex activity before and after His resurrection. (Sex with Mary Magdalene and the Goddess.)

I neglected to answer your questions about "God's poop" and the "Goddess' boogers" in my Aug. 25th letter to you. I'm not sure whether you ask these because of a scatological fetish or an ecological concern. Nobody asked these things before during the 16 years we've had this theology, and I hadn't thought about them. Deity DO have corresponding anatomical parts, and anal parts are not merely ornamental in Them, any more than any other parts. I guess the poop would be biodegradable in Heaven. Maybe they have assigned creatures to dispose of it. However, I don't think there are any "Goddess' boogers." What She breathes would not make any. Her nostrils always stay clean. Their poop might be the "manna," called "angels' food" in the Bible. Whatever, I'm sure They are efficient.

Well, thank you again for publishing an article about us (though somewhat inaccurate), and sending a copy. And thank you in advance for making the corrections in your *WER* ACCESS UPDATE in the next issue. Please send us a copy of the corrections when made.

Yours truly,
Vice Bishop H. Jacobsen
of T M C + A

The rights of aliens

Your attacks on those of us who believe we're from other planets fails to take into account the 1st Amendment to the Constitution which guarantees us freedom of religion to do so. Sure we might not be "normal" but normal in this society includes cutting off little baby's foreskins & that's crazy & a religious custom as well. First the name calling, then the Gestapo round us up in the night. I'm proud to believe I'm from Uranius, son of Goddess Estesia & Kuthomi, also a Buddhist.

Robert Cucullu
Sedona, AZ

Fireballs from other planets

Just read your article on instant human combustion, in the Fall issue. I first learned of the subject twenty years ago. The book *Other Tongues Other Flesh,* by George Noun Williamson, gives a good explanation of the phenomenon.

The writer Dickens wrote a story about a man who in real life actually perished as Mrs. Reeser did. Everyone of the victims so far has always been a degraded human being and water cannot put out the fire, it only adds to its intensity.

Dr. Williamson states that people from other planets create fireballs in their laboratories. These fireballs are attracted to certain individuals by the force of magnetism. As soon as a person takes up a certain evil path, one of the fireballs starts on its journey toward that person. If the victims don't change their ways cremation occurs. If an individual should decide to change the fireball will reverse direction.

An example is found in *Mystic Magazine* for October, 1954. In Orfeo Angelucci's article, "My Awakening on Another Planet."

"The scene was focusing upon an unfamiliar part of the heavens. A sun and a number of encircling planets were in view. Then the scene centered upon a single planet in this unknown solar system. It was a smug, sleek planet; but it was exceedingly dark in tone and surrounded with concentric waves of darkness. A tangible vibration or emanation came from it, evil, unpleasant and utterly without hope.

"Approaching this world I saw a glowing red dot with a long misty tail. The fiery dot seemed irresistibly attracted to the dark world. The two collided in a spectacular fiery display. I felt Lyra's hand on mine as she whispered, 'It is an immutable law of the cosmos that too great a preponderance of evil inevitably brings about self destruction.'"

The fireball cannot be destroyed. It will exist forever, until it meets the object of its attraction. Its power is similar to the robot Gort, from the movie, *The Day the Earth Stood Still.*

On March 23 of this year, another cremation took place in New York City. A retired fireman named Mott was found burned to ashes in his bed. It would be interesting to do an investigation of the deceased man to learn as much as possible about him.

Sincerely,
Richard J. Aliamus
Mountain View, CA

The Newspaper House

I could easily comment and praise any of the articles in "The Fringes of Reason" (*WER* #52) but I'll focus on "Visions of Home." My check to Spaces is already in the mail to help preserve these wonderful places, but I wanted to bring to your attention (and Spaces', if they're not aware of it) a neat place in Massachusetts called the Paper House.

I read about this incredible site in the AAA travel book and dragged my family to see. Hubby and sons were not as impressed as I was; I felt like Alice after she nibbled the cake that said "eat me" and shrank to a tiny size to fit into a doll house. The quality of doll house furniture — of being so precious, sweet and quaint from being painstakingly made by big fingers trying to be dainty — manifests itself in this full-size house. Every article is something to exclaim over — the desk made of newspapers about Lindbergh's flight, the chairs and tables, the curtains, beaded curtains made from rolled up strips of magazines! It is all too dear. You can't help but feel tenderness and admiration for someone who would spend all that time making something this marvelously bizarre. Thank God for the Elis F. Stenmans of the world.

Roberta Urbani
Huntington Woods, MI

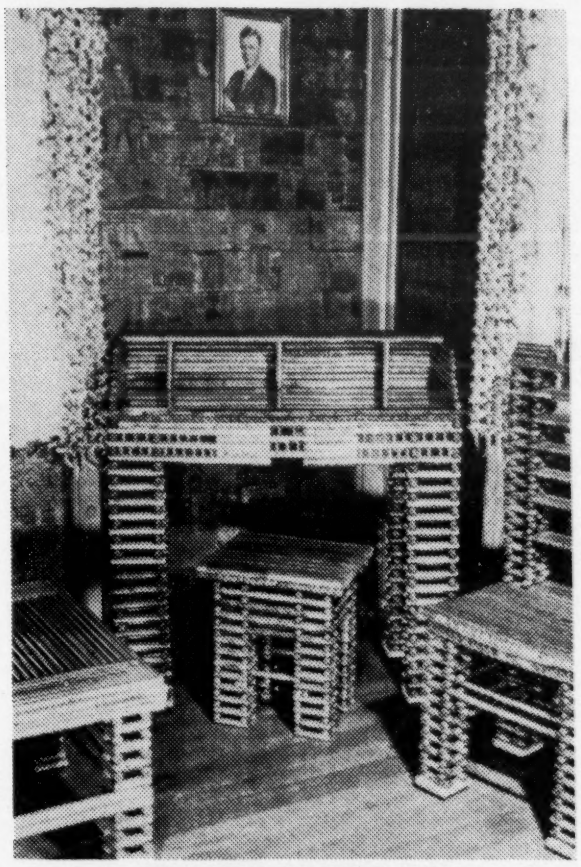
The hundredth Russian

I enjoyed your articles discussing the phenomenon of the "hundredth monkey" (*WER* #52), however I believe your quest for healthy skepticism has led to an unfair depiction of evidence for group-consciousness. You choose to ignore other examples of the phenomenon, and you use a weak rebuttal from Lyall Watson to present a facade of balance and even-handed treatment.

An excellent example of group-consciousness can be found in the book *Assignment in Utopia,* by Eugene Lyons (Harcourt, Brace and Co., 1937). The book is an account of Lyons' tenure as Moscow correspondent for United Press International.

The following is an excerpt from page 364:

"The collapse of popular faith in the currency led to an extraordinary episode late in 1930. The Soviet Union awoke one morning to find itself mysteriously short of small change; copper and silver coins were annoyingly few and in several days disappeared altogether. A little thing, it would seem, but the machinery of everyday life, already complicated and



This is the Lindbergh Desk in the Paper House.
Pigeon Cove, Mass.

burdensome enough, was put further out of joint. Clerks in shops, conductors on street-cars, peddlers in the markets could not make change. The banks and post-offices rapidly ran dry of all coins. Beggars stood with empty cups, since no one had coins to spare. The telephone pay-stations, normally overcrowded, now stood idle.

"The mystery was not mysterious after all. Millions of peasants throughout the country had decided by a common impulse — one of those inexplicable brain waves sweeping with the speed of light across seven thousand miles — to hoard silver and copper. Suddenly and almost simultaneously throughout the vast nation, the peasants lost the last shred of respect for the national currency and held on to coins for their intrinsic worth as metals. Rapidly, the whole supply was drained off into their coffers.

"Municipal authorities hurriedly issued 'scrip' in denominations from one to ten kopeks. Stores gave credit slips instead of cash for change. A week or two and the crisis was over.

"Is it a curious intuition or a telepathic flash that moves millions of simple people continents apart to some common action, though they have no leadership, no contacts, no press? Again and again I have seen them act — or rather, react — with amazing unanimity. Thus it was in the previous winter, when peasants separated by a thousand miles met forcible collectivization in exactly the same way, by slaughtering their cows, as consistently as though they had conspired in advance. But the hoarding of coins, less important in itself, was clearest indi-

cation of this almost psychic mass consciousness."

I class myself as a scientific humanist. I don't ascribe the group-consciousness effect to any form of psychic phenomenon. But neither do I allow paranoiac fear of pseudo-science to cloud my ability to observe events that do not fit into the framework of present-day knowledge. To be a good scientist, you must be a good observer.

Mark Thorson
Milpitas, CA

A stubborn old idea

In "Reality Shopping" (*WER* #52), Alan MacRobert mentions Dr. William Horatio Bates and his work: *The Cure of Imperfect Eyesight Without Glasses*. Bates described eye exercises that were supposed to cure bad eyesight and eliminate the need for glasses and other optical eyesight enhancers. Bates' theory was that the eye does not focus by mechanically changing the shape of the eyelens. He said the problems that orthodox doctors attribute to imperfect lenses are actually caused by "abnormal conditions of the mind" or "wrong thoughts". Philip Pollack later wrote a book describing the failures of the Bates system. MacRobert agrees and used the Bates system to demonstrate examples of misguided ideas of the past.

Meanwhile, back at the "Backscatter" department, reader John Hillbrand mentions an article in the January 1986 issue of *OMNI* magazine that describes multiple personality disorder. The article states: "The various personalities have distinctive allergy patterns, menstrual periods, distinctive patterns of cerebral blood flow, brain wave activity and hemispheric dominance; and different *prescription eyeglass needs*. The *OMNI* article also mentions that 85 to 90 percent of MPD patients were victims of child abuse and had acquired multiple personalities designed to fit a wide range of needs and demands as placed upon them.

In another article (*OMNI* December 1985, page 32) the story is told of Joseph Trachtman, a vision training specialist, who has developed a device called the Accommotrac Vision Trainer. The AVT works by using biofeedback techniques, sound and infrared light, to "train" patients to focus their eyes to see for longer distances. The AVT does not eliminate the need for glasses but tests have shown that myopia has been reduced in more than 100 subjects. Some patients went from 20/200 vision at the beginning of the exercises, to 20/40 vision by the end of the exercises.

Whereas eyesight has always been thought by most to be controlled strictly by the mechanical focusing of the lenses of the eye, from these statements it sounds to me like eyesight problems are something that do indeed reach into the great unknowns of our minds.

Even though Bates might have been off base in some areas he just might also have been about 60 years ahead of his time. I understand Da Vinci was the butt of more than a few jokes in his time as well.

I do like to keep my mind open to new ideas — and old ones.

Scott Parker
Beaumont, TX

James Donnelly

Anomalous pee light

Speaking of "Marine Phosphorescent Displays" (*WER* #52, p. 46), I scared the piss out of myself some years ago (around 1967 or 1968). I was working on a Moore-McCormack freighter en route either to or from South America. In those days ships' toilets were usually flushed with salt water and in tropical seas we often passed through dense patches of phosphorescent algae.

So one night I woke up with a full bladder, but instead of turning on the light, I just kneed my way to the pot. When my piss hit the pan it exploded with a blue flash the likes of a point-blank flash bulb. Half-asleep until then, for a minute or so I didn't know what had hit me and even after figuring it out I didn't get back to sleep easily.

As with all sea stories, you get the standard disclaimer, "Now this ain't no shit!"

Continuous Wave
(Steve Haust)
Wesford, PA

Smearing the New Age

I first tuned into your work in the late sixties and early seventies with your *Whole Earth Catalog* that spoke to those of us seeking alternatives to the linear-think, more-is-better, patriarchal rape-the-earth-and-to-hell-with-our-grandchildren attitude that dominates our Western Man culture.

CoEvolution Quarterly and *Whole Earth Review* seemed to follow in this alternative direction. As a user of computers myself, I was pleased to see your magazine addressing the dangers and pitfalls inherent in these marvels of modern technology while at the same time emphasizing their potential benefits to our changing society.

It was therefore with a great deal of sadness and surprise that I read your latest issue of *Whole Earth Review,* No. 52, in which your editor, Ted Schultz, completely smeared the New Age and all that it stands for. Obviously there are excesses and inaccuracies in our attempts to gain a new consciousness, an alternative to Western Man thinking. The various articles on the Hundredth Monkey are well researched, and show this clearly. These articles do a good job at exposing a myth that I had certainly bought into myself.

But it is the rest of the low-consciousness, quick-smear, ain't-it-grand-puttin'-all-this-stuff-down?, ignorant yellow journalism that passes for even-handed examination of New Age directions that I am concerned with. As the definers of "ultimate reality," scientists have become Western Man's priests. Rationalism and the scientific method are the only way. Obviously, if Ted Schultz can't see it, hear it, touch it, taste it or feel it (or make a needle move on some machine), it doesn't exist.

While I can't speak to the Bates vision correction method or iridology, I can say from personal experience that both foot reflexology and homeopathy work. For me, all the rationalism and scientific tests of allopathic medicine can't beat my own personal experience.

And then we come to that ultimate bull-shit paragraph on page 12: " . . . one of the key distinctions between science and pseudoscience (Schultz's put-down jargon for New Age) is that science changes rapidly. New ideas are quickly accepted once they are proven, and disproven ideas are likewise quickly rejected." I remember Max Plank's frustration over the lack of acceptance of his Quantum Mechanics Theory. To this day, most of Western Man's so-called

scientists still operate in a world dominated by Newtonian physics.

The New Age invective continues unabated throughout the magazine. Stand up comic Paul Krassner putting a dime on the table and challenging someone to move it without physically touching it. When told that, "You can't just move a dime like that; you have to work up to it." . . .

"All right, let's start with a penny."

Then Schultz goes on to emphasize the fringe of the fringe — Backstage with Bob, whacky spiritual channels, the weirdest of the weird publications you can send for — all signs not of the New Age but of the decadent end of the Old Age. One would be led to believe that there is absolutely no redeeming value to the New Age at all. Rationalism reigns supreme! Long live science and Western Man.

Sig Lonegren
Greensboro, VT

A commune that doesn't really work

After reading Kat Kinkade's article "A Commune That Works, So Far" (*WER* #51, p. 80), I feel it's time someone who does not have a vested interest in promoting this view of Twin Oaks be given an opportunity to comment. Having been a member of various communes for over 5 years including 3½ at Twin Oaks, I can't believe she's describing the same Twin Oaks I was a member of in her article.

Kat fails to mention that not only are democracy and voting not allowed, but there is no system for dealing with dishonesty, sexism and other problems simply because they're not supposed to exist.

The lack of voting preserves a heirarchy composed of Kat, her friends, and certain long-time members who define what "equality," "sharing," and "reasonable compromise" mean. These members present themselves as representatives of the community to reporters and camera crews, write articles, and give lectures about who "we" are. They control the wealth and direction of the commune, decide who goes and who stays and what privileges certain members get, not because they represent a majority, but because people don't dare disagree with them. Members who please the heirarchy get benefits ranging from not having to do dirt work to getting sent through medical school at community expense. Members who try to change the system are told their "value systems are too rigid," or they're "being too judgemental," or they're "not willing to compromise" and should live someplace else. New members soon learn that despite the glowing rhetoric, if they want to stay a member, they shouldn't complain or criticize the system or certain members in particular.

If a member steals from another, the victim is told he/she is having "interpersonal problems with the offender, and should see a facilitator, especially if the offender is higher in the pecking order. If the offender doesn't want to "work things out" — tough. Case closed. This is an alternative society?

As for equal distribution of work, every member gets a labor sheet on which they're supposed to fill in the hours they work, and everyone is supposed to work a certain minimum number of hours per week. But the fact of the matter is, once they're accepted, everyone writes in their hours whether they do the work or not. Some members work the full quota, some do half, some don't work at all. The more senior members write in hours they spend on their own hobby projects and count that towards the total. So much for "equality."

As for sexism, any commune that practices a policy of paying to artificially inseminate women who can't stand men, has a lot of nerve saying "as a whole" it's not sexist. This is a typical example of the kind of doublethink required to be a member of Twin Oaks. There is a lot of sickness and immaturity like this passing itself off as some kind of "new age enlightenment" there.

It's been my experience that Twin Oaks exists because of a steady stream of naive new members and a lucrative contract with a chain of retail stores, not because of any higher values. I guess it's only human nature to want to believe that places like Twin Oaks "work" so it's easy to rationalize the failure by saying "we have a few minor problems, but as a whole, we're the freest people in the world." Although I don't expect Kat Kinkade to be that critical of a commune that just put her daughter through med school, statements that everyone has what they need, or that there is open membership or that Twin Oaks has avoided the pitfalls of The Farm because they don't have a guru, are simply not true.

I carefully avoided joining any commune with a guru or strong central leader because I already knew full well the potential for abuse this provides. It wasn't until I read "Why We Left The Farm" (*WER* #49, p. 56), and in particular, Ellen Rainwalker's letter "Building an Instant Class System" (*WER* #51, p. 79), that I realized there are far more similarities between the two communes than differences. *Whole Earth Review* deserves some kind of Pulitzer Prize for bringing these articles out — they are the first true words I have ever seen in print about intentional communities. The fact of the matter is, the corruption and abuse described applies just as much to other communes as it did to The Farm.

Too much is written extolling the alleged virtues of organizations which, at best, are no different from any other company towns, and at worst, are asylums for deluded, immature people who can't deal with the rest of the world. Since opposing views don't get aired, we never hear about the real problems of community.

Who defines what constitutes equality, sharing, reasonable compromise, or any other value? Who makes the rules and who enforces them? Who decides what's fair and what isn't? How do we define the success or failure of such a group — the number of members? the standard of living? the number of years in business? the amount of money made?

I'm not ready for any more communal experiments because it's been my experience that there is far more corruption, exploitation and abuse at these places than the dreaded "outside world," whether they have gurus or not. Just how realistic is it, in a world where it's hard enough to keep a regular nuclear family together, that a bunch of strangers are going to get together and live up to some vague value system? Believing that Twin Oaks "works" got to be as burdensome as believing in Santa Claus.

C. L. "Cory" Koral
Huntly, VA

Correction

The review of "Talking Pictures" on p. 105 of issue #52 was written by Tom Schneider, not by Steven Levy (as we had it).

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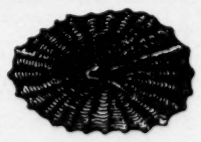

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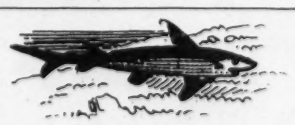

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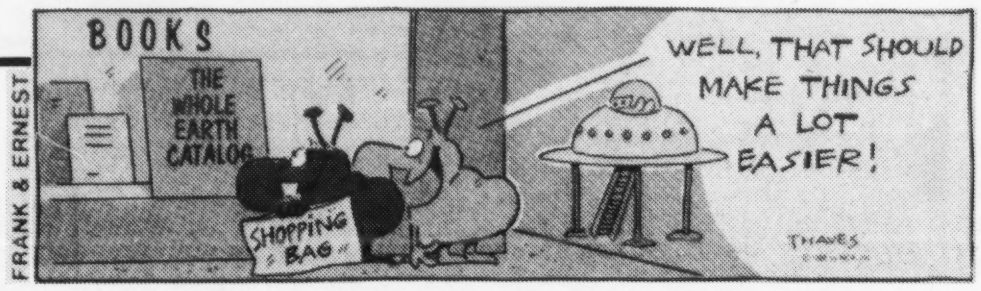

As we so unabashedly hawk on the back cover, the Essential Whole Earth Catalog *is done at last, and available from us, or your local bookstore. A marvelously handy book, we use it ourselves. I found some Boffers for our church's New Games. Kathleen O'Neill used it to order exotic garden seeds. Cindy Craig found a soft-sculpture book for her sister. You'll probably appreciate the more portable size we've compacted everything into. Doubleday, our publisher in New York, printed a conservative 75,000 copies on the first run. We're hoping to sell those out and have a second printing before Christmas.*

We shipped the final film of the Essential Whole Earth Catalog *to Doubleday right on schedule. The last two weeks were a feverish race to assemble the 2,000 pictures and matching reviews we had prepared during the previous seven months. We put in long days but mercifully no overnighters. More blessedly, no one burned out. That's in part due to methodical operations set up by J. Baldwin, Jeanne Carstensen, and Susan Ryan. As regular as a riverboat mark twain, Jeanne would announce the day's pace: "Nine pages or sink." From where I worked, I could hear Susan, our production manager, shouting, "Okay, listen everybody, we have a new typesetting schedule: it's called 'Working All The Time.'" Donald Ryan, when asked what he was going to do when he got home, said "We've been working overtime so long that when we get home maybe there won't be TV any more. Maybe the world has moved on to something wild like books."*

Other remarks: Hank Roberts, our proofreader, "This page got a sexist paste-up job. It's the birthing page. One of these baby-being-born drawings is upside down." Donald, to me while I was hunting for a book on his table, "Why are you looking on MY desk? Isn't there anything lost in your office?" After laboring over 40 pages, Jeanne, managing editor, trying unsuccessfully to articulate a question: "Sorry. I'm not to the point where I know what point I'm at." As the last two to be working late one night, Susan is telling Donald, "No, Donald, WE are the dumb people. We are the only ones who didn't talk other people into doing our jobs."

But the jobs do get done. A game of musical chairs makes it hard to keep track of who does what, but here goes a try: Matthew McClure, who was the sysop for the WELL computer teleconference system, left to work for a joint China/America software development group. Cliff Figallo, our bookkeeper, took his place. Cindy Craig, in turn, took over Cliff's job. Dick Fugett, general purpose clerk, took over Cindy's job of magazine distribution. So a new fellow, Paul Davis, took over Dick's job of satisfying subscription complaints and answering the phone. Got that? Good, because there are also two others who have been hired to catch the stuff falling between the cracks as everyone rotates. To make it more complicated the two of them, Keith Jordan and Richard Schauffler, are job-sharing one job. They job-shared the same job at the last place they worked at, so we get the experience of two, and they each get a flexible half-time job. Next?

For the last year or so everyone got paid $10/hour straight — no overtime pay, no paid benefits, no paid vacation — love wages. I noticed while compiling the expense/income statement for the Essential Catalog *that everyone was paid $9.25/hour in 1981, with paid volleyball and paid lunch time. Sooooo . . . we all got raises. We now make $11/ hour. We can't afford it, but we never will. Raises first, income will come in or we'll find other work.*

Or other joys. Jeanne bought an around-the-world ticket which flew her away in September. The stopovers she teased us with while we worked on the Nomadics section were her destinations in Hong Kong, Nepal, and Thailand. J. Baldwin did his camping out at Whole Earth during production in

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Wearing her bridal gown, Cindy jumps into the volleyball game to play net. (Right) Dick and Cindy exchange vows on a sunny August day.

order to keep up with the peerless editing he did on the Catalog. When done, he packed his bags into his Toyota and has been rolling around the states. Ken Conner, our copy editor, managed to write a novel while no one was looking. He sold it to Doubleday; his first. It's a mystery about the Northern California pot fields, titled Blood Moon.

Before everyone scattered, we all gathered for another in-house wedding. This time the setting was a magnificently cultivated homestead just off the county highway near Petaluma, California. A baking blue sky, the cool shadow of a grape arbor dangling fruit, a back yard full of folding chairs, and tables circled with plates of summer appetizers. Cindy, the bride, in white. Dick, the groom, wearing a tie for the first time any of us have ever seen. (We had bets on whether he would wear shorts. He swore he was going to wear Levis, and did — black dyed ones). The Catalog over, everyone was relaxed. An amiable priest officiated the service beneath the redwood trees.

As he began to bless Cindy and Dick with a prayer, we heard a sudden screeching of tires and the dull thud of auto denting auto in front of the house. It didn't sound serious, so no one moved till he closed with an amen. Up from the road came Ted Schultz and Becky Wilson, the creators of last issue's weirdness and strangeness collection, "The Fringes of Reason" (WER #52). Nobody was hurt. In a remarkable coincidence, just at the moment of silence when Cindy and Dick were married, Becky and Ted's car was smashed in the rear by a car trying to pass them. Okay, explain that!

—Kevin Kelly

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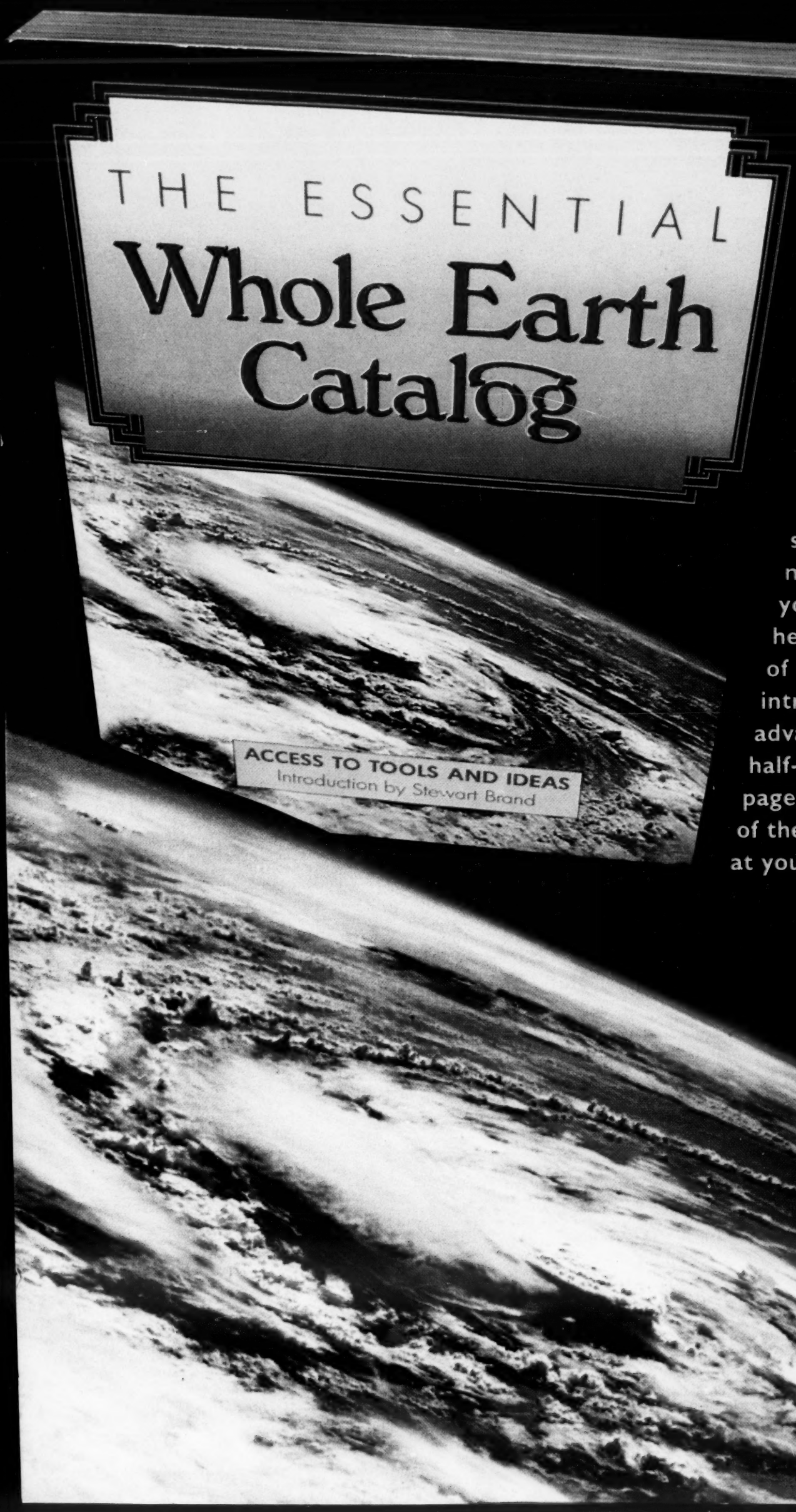

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